

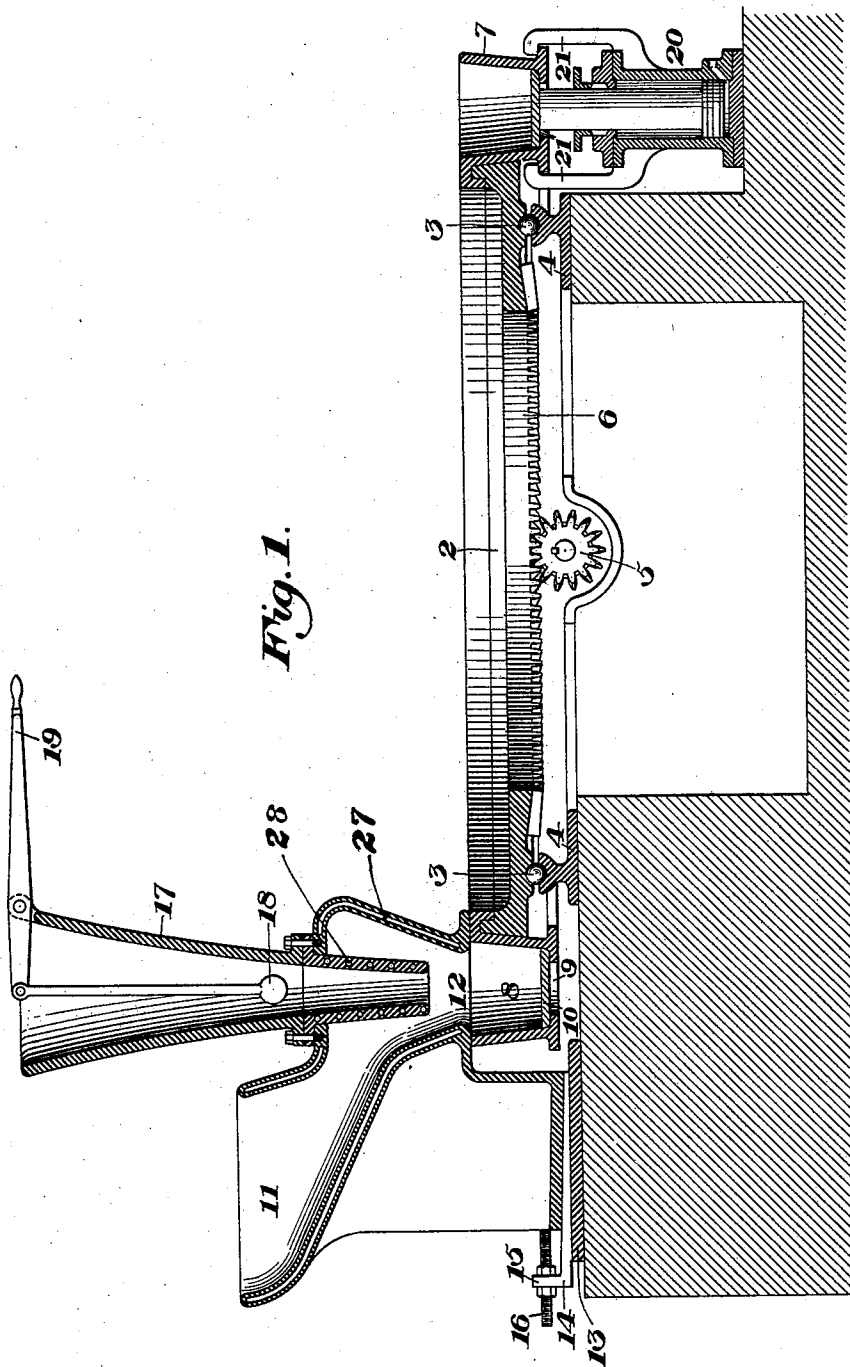
(No Model.)

2 Sheets—Sheet 1.

J. A. POTTER.
CASTING APPARATUS.

No. 601,083.

Patented Mar. 22, 1898.



WITNESSES

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S. S. Holschlag

INVENTOR

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by Barwell & Barwell
his attys.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 4.

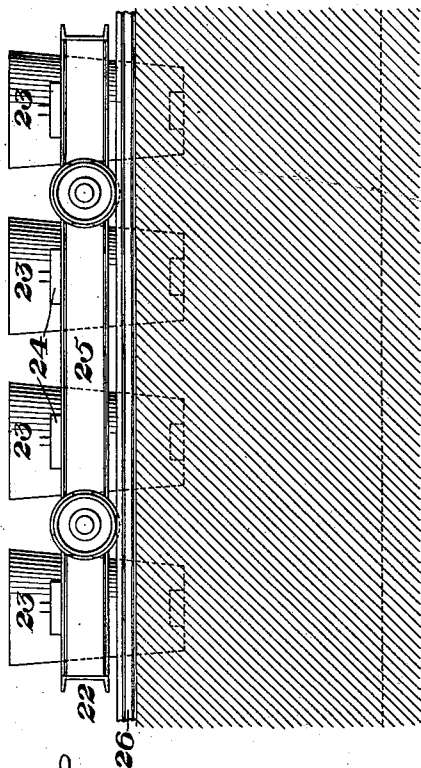


Fig. 3.

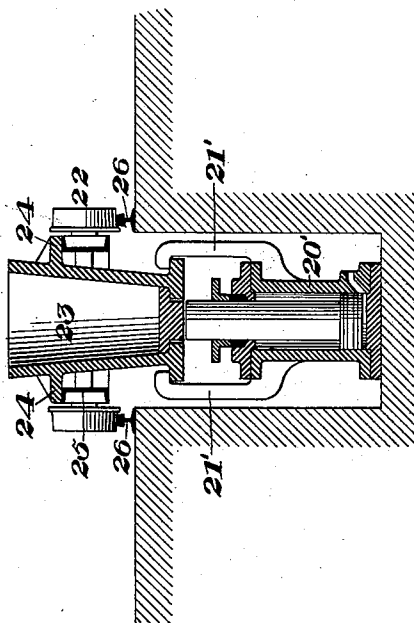
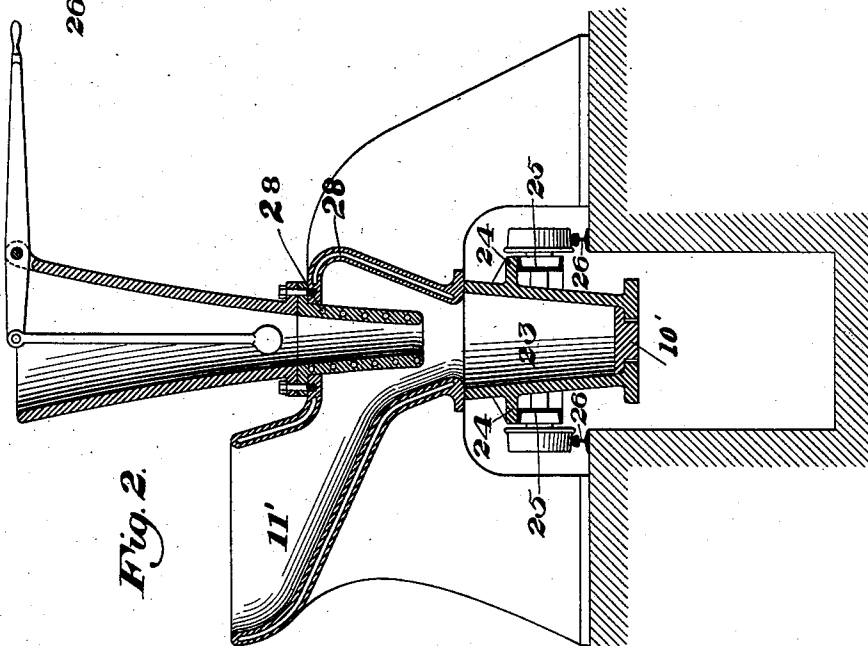


Fig. 2.



WITNESSES

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UNITED STATES PATENT OFFICE.

JOHN A. POTTER, OF CLEVELAND, OHIO.

CASTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 601,083, dated March 22, 1898.

Application filed April 23, 1897. Serial No. 633,515. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. POTTER, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and useful Improvement in Casting Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical sectional view of one form of apparatus I employ. Fig. 2 is a similar view of another form of the apparatus. Fig. 3 is a vertical section of the ejector used with the form of Fig. 2, and Fig. 4 is a side elevation of a series of molds employed in the form of Figs. 2 and 3.

My invention relates to casting apparatus, and more especially to apparatus adapted for mixing powdered material with the molten material passing into the molds. It also relates to an ejecting mechanism which may be employed with different types of molds and is especially applicable to those used for casting ingots.

The use of finely-divided iron ore as well as iron borings, chippings, &c., in open-hearth furnace or blast and cupola furnace work has been very wasteful and laborious on account of the fine particles being carried into the flues and lost. To overcome this difficulty, it has been proposed to agglomerate ore with slag, the powdered slag being mixed with the ore and then fused or the fine ore being mixed with melted slag. No efficient means, however, has been devised for combining the fine ore with melted slag, and my invention relates more especially to a machine for this purpose.

In the drawings, referring to Fig. 1, 2 represents a rotary table or annulus supported upon balls 3, carried in an annular groove of the base-plate 4. This table or wheel is rotated by a toothed wheel 5, engaging an annular rack 6 upon the wheel. Suspended upon the outer portion of the wheel is an annular mold 7, separated into a series of mold-cavities by partitions 8. The bottom of each mold-cavity is provided with a hole 9, over which rests a movable stool or false bottom 10. Over the mold-ring at one point in its revolution is supported a slag-hopper 11, the opening 12 of

which registers with the upper ends of the mold-cavities, so that the molten slag poured into the hopper will run directly into the molds. This hopper is adjustably supported upon its base 13 and may be moved back and forth or adjusted vertically by the wedge-plate 14, having a lug 15, through which passes the adjusting-screw 16, taking into the support of the hopper. Through the upper side of the slag-hopper extends the ore-hopper 17, the descent of the ore through this hopper being regulated by the valve 18, operated by the handle 19. Both the slag-hopper and that portion of the ore-hopper within the same may be water-cooled by cavities in the walls, as shown at 27 and 28, respectively, so as to prevent their being eaten away by the molten slag. At a point in the path of the wheel opposite to that at which the slag is fed I provide an ejector consisting of a hydraulic cylinder 20, having a vertically-extending plunger 21, arranged to pass through the holes in the bottoms of the molds and act upon the stools 10. To take up the strain upon the molds during the upward movement of the plunger, I provide the hooked bars 21, the upper ends of which extend over lateral flanges at the bottom of the mold-ring.

In Figs. 2, 3, and 4 I show a form of the apparatus wherein cars 22 are employed, the molds 23 setting within the car and having flanges or lugs 24 resting upon the side members 25 thereof. These cars 22 travel upon a track 26, which passes beneath the hopper 11, arranged as above described, and the molds taper downwardly and are provided with stools 10, as before. At one point in the track I provide the ejector 20, which forces out the blocks and is provided with the hooked bars 21.

The operation of the device will be apparent. The slag flowing through the slag-hopper will become mixed therein with the ore, the quantity of which may be regulated as desired, and the mixture flowing into the molds will form blocks or bricks therein. The wheel being slowly rotated, as in Fig. 1, or the cars moved in the form of Figs. 2, 3, and 4, the bricks or blocks will become solidified in the molds, and as the molds successively reach a point over the ejector the plunger is

forced up and the brick lifted above the mold to a point where it can be seized by tongs or other apparatus.

The advantages of my invention result from the fact that by passing the molten slag and ore or metallic chippings or shavings together into the mold the bricks may be obtained very cheaply and expeditiously and the great waste from loss of the fine particles avoided.

The movable bottom or stool in the mold is a valuable feature and one which may be used in stripping ingots out of their molds or with molds of other descriptions, and I desire to cover the same broadly, especially in connection with the ejecting-plunger, whether used in the apparatus shown or not.

I claim—

1. The combination with a series of molds, of a hopper arranged to feed material thereinto, a second hopper extending into the first hopper so as to mix the materials therein, and a valve controlling the feed of the second hopper.

2. The combination with a series of molds located upon an endless carrier, of a hopper arranged to feed material thereinto, a second hopper having a water-cooled portion extending into the first hopper and arranged to mix

the materials therein, and means for moving the molds beneath the first-named hopper. 30

3. The combination with an endless carrier having a series of molds thereon, of a water-cooled hopper located over the molds at one point in their path, and a second hopper extending into the first, the inner portion of the latter hopper having a water-cooling device. 35

4. The combination with a mold having a hole in its bottom, of a loose movable stool over said hole, an ejecting-plunger, means for bringing the mold into position with the hole in registry with the plunger, and means for holding the mold against movement while the plunger is forced in to eject the metal. 40

5. The combination with a mold having a hole in its bottom and a loose movable stool over said hole, of an ejector having arms arranged to engage the mold, and means for bringing the mold into position with the hole in registry with the ejector-plunger. 45

In testimony whereof I have hereunto set my hand. 50

JOHN A. POTTER.

Witnesses:

JOHN H. NEWEY,
F. H. HART.