

1,354,975.

2 SHEETS—SHEET 1.

J. Herbert Bradley.

Willis T. Hurst
by Winter & Brown
his attorneys

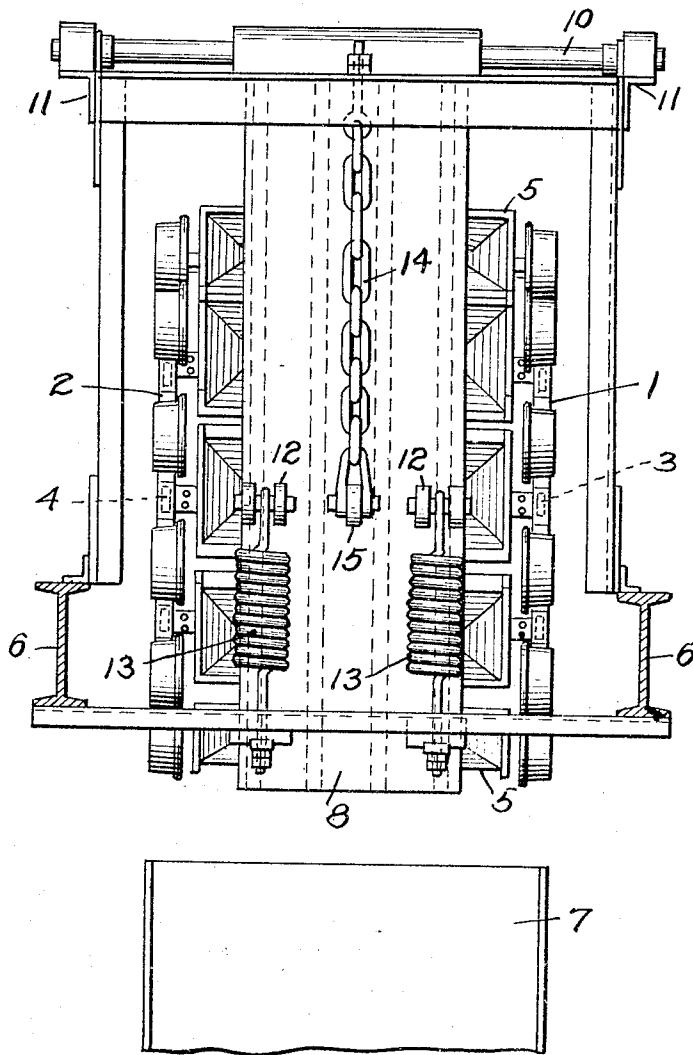
W. T. HURST.
PIG METAL CASTING MACHINE.
APPLICATION FILED FEB. 17, 1920.

1,354,975.

Patented Oct. 5, 1920.

2 SHEETS—SHEET 2.

FIG. 2.



WITNESSES

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INVENTOR

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UNITED STATES PATENT OFFICE.

WILLIS T. HURST, OF PITTSBURGH, PENNSYLVANIA.

PIG-METAL-CASTING MACHINE.

1,354,975.

Specification of Letters Patent.

Patented Oct. 5, 1920.

Application filed February 17, 1920. Serial No. 359,366.

To all whom it may concern:

Be it known that I, WILLIS T. HURST, a resident of Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Pig-Metal-Casting Machines, of which the following is a specification.

The invention relates to machines for casting pig-metal, such as pig-iron and pig-copper, and has particularly to do with the construction of the discharge ends of such machines.

The pig-metal casting machines contemplated herein are of the well known type in which casting molds, arranged adjacently to each other are attached at their ends to a pair of endless conveyer chains which extend over, and are driven by, sprocket wheels. Molten metal is poured into the casting molds as the conveyer is continuously driven, the metal usually being subsequently cooled by streams of water poured upon it. At the turning point of the conveyer the pigs, so formed, are successively discharged from the molds into a chute, or an equivalent structure, whereby the pigs are directed or carried as desired.

The object of the invention is to provide at the discharge end of the conveyer a guide for so directing the pigs into the chute that they will have a minimum fall before striking the chute, such guide being also so constructed that it will not be broken or otherwise injured in case of certain exigencies of operation which occasionally happen, as will presently be explained.

The invention is illustrated in the accompanying drawings, of which Figure 1 is a combined side and vertical sectional view of the discharge end of a pig-metal casting machine, and Fig. 2 an end view thereof.

In the casting machine a pair of endless conveyers 1 and 2 extend around and between sprocket wheels, of which there is indicated in the drawings but one pair 3 and 4 at the discharge end of the machine. Arranged between, and supported by, the links of the conveyer chains, there are suitable casting molds 5, which may be of any desired form or construction, but which are preferably of the general shape and arrangement indicated in the drawings. The sprocket wheels 3 and 4 may be rotatably supported upon a suitable frame 6, and may be driven in any desired manner to cause

the mold conveyer to continuously move beneath a stream of molten metal being cast into the molds.

Below the discharge end of the conveyer there is arranged a pig conveyer which may take the form of a downwardly inclined chute 7. The pigs, by the time they are carried to the discharge end of the conveyer having been sufficiently cooled to assume a permanent set, readily fall from the molds as the conveyer turns downwardly around the sprocket wheels, as indicated by the pig 5^a. The pigs usually have sharp edges, and, being quite heavy, they cause considerable wear upon the receiving chute, particularly if they are permitted to fall unrestrained from the positions in which they drop out of the molds. To prevent the pigs from falling through a considerable space upon the chute 7, a guide 8 is arranged adjacent to the ends of the mold conveyer, such guide preferably being curved in an arc of a circle concentric with the sprockets 3 and 4 and cooperating with the molds to hold the pigs against falling until they are in proximity to the chute.

It occasionally happens that a rigid article, such as a pig, a bar of metal, tool, etc., falls upon the top of the mold conveyer, and, in the general position indicated by the pig 9, is carried by the conveyer to the discharge end of the machine. To prevent injury to the casting machine, or the conveyer, or both, due to a pig being wedged between the molds and the guide 8, such guide is attached to its supporting frame in such a manner that the guide may move laterally, means being provided for yieldingly holding the guide toward the conveyer. Preferably, the upper end of the guide is pivoted, as at 10, to a supporting frame 11, which may be a part of the general supporting frame for the discharge end of the machine. For holding the guide yieldingly toward the conveyer, the guide may be provided with a lug 12 to which there is attached one end of a spring 13, the other end of which is connected to the supporting frame. In the drawings two of such springs are shown, one being attached to each side of the guide. For holding the guide against contact with the end of the conveyer, a suitable stop is provided, such stop preferably consisting of a flexible member, such as a chain 14, attached at one end to a lug 15, projecting from the back of the guide, and at the other end to the supporting frame 11.

The general operation of the casting machine has been previously explained. Normally each pig partially falls from its mold when the mold is about in the position of the mold 5^a. However, the pig cannot fall directly upon the chute 7 from this height, because of its being restrained by the guide 8 which holds the pig in the outer end of the mold until the mold passes beyond the lower end of the guide. When an obstacle, such as a pig 9, rides upon the top of the mold conveyor, the guide will, when pressure is placed upon it by the moving obstacle, move laterally against the resistance of the springs 13 to the position indicated in dotted lines in Fig. 1. Thus, the obstacle may pass between the mold conveyor and the guide without injuring either, and when the obstacle has dropped into the chute 7 the guide will be returned to its normal operating position by the action of the springs.

According to the provisions of the patent statutes, I have described the principle and operation of my invention together with the construction which I now consider to represent the best embodiment thereof. However, I desire to have it understood that, within the scope of the appended claims, my invention may be practised by other forms of construction than that specifically shown and described herein.

I claim as my invention:—

1. In a pig-metal casting machine, the combination with a supporting frame and a continuous mold conveyor, of a pig-receiving chute below the conveyor, a laterally movable guide supported by said frame adjacent to the discharge end of the conveyor, and adapted to direct into said chute the pigs discharged from the molds, and means for holding said guide yieldingly toward the conveyor.

2. In a pig-metal casting machine, the

combination with a supporting frame and a continuous mold conveyor, of a pig-receiving chute below the conveyor, a guide pivoted at its upper end to said frame and extending adjacent to the discharge end of the conveyor in a position to direct into said chute the pigs discharged from the molds, and means for holding said guide yieldingly toward the conveyor.

3. In a pig-metal casting machine, the combination with a supporting frame and a continuous mold conveyor, of a pig-receiving chute below the conveyor, a guide pivoted at its upper end to said frame and extending adjacent to the discharge end of the conveyor in a position to direct into said chute the pigs discharged from the molds, a spring acting between said frame and guide to hold the guide yieldingly toward the conveyor, and a stop for holding said guide against contact with the conveyor.

4. In a pig-metal casting machine, the combination with a supporting frame and a continuous mold conveyor, of a pig-receiving chute inclined downwardly from a position below and adjacent to the discharge end of the conveyor, a curved guide pivoted at its upper end to said frame and extending adjacent to the discharge end of the conveyor, in a position to direct into said chute the pigs discharged from the molds, a lug extending laterally from said guide, a spring attached at its opposite ends to said lug and frame to urge the guide toward the conveyor and a flexible member connected at its opposite ends to the said guide and frame for holding said guide against contact with the conveyor.

In testimony whereof, I have hereunto set my hand.

WILLIS T. HURST.

Witness:

ALICE A. TRILL.