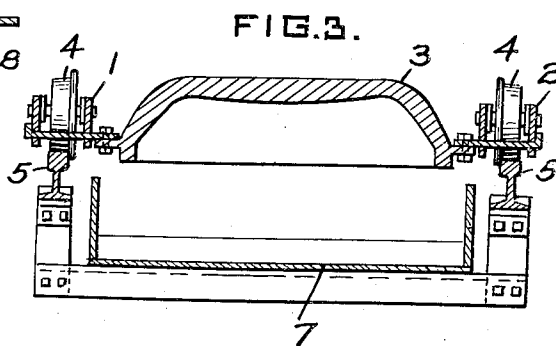
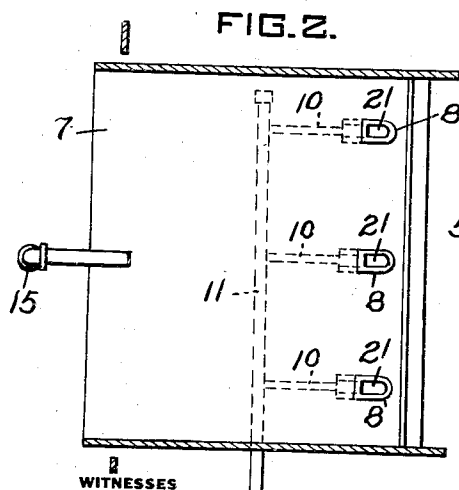
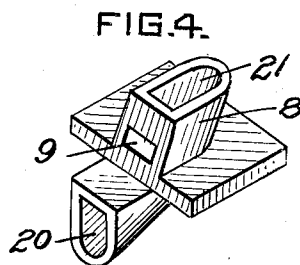
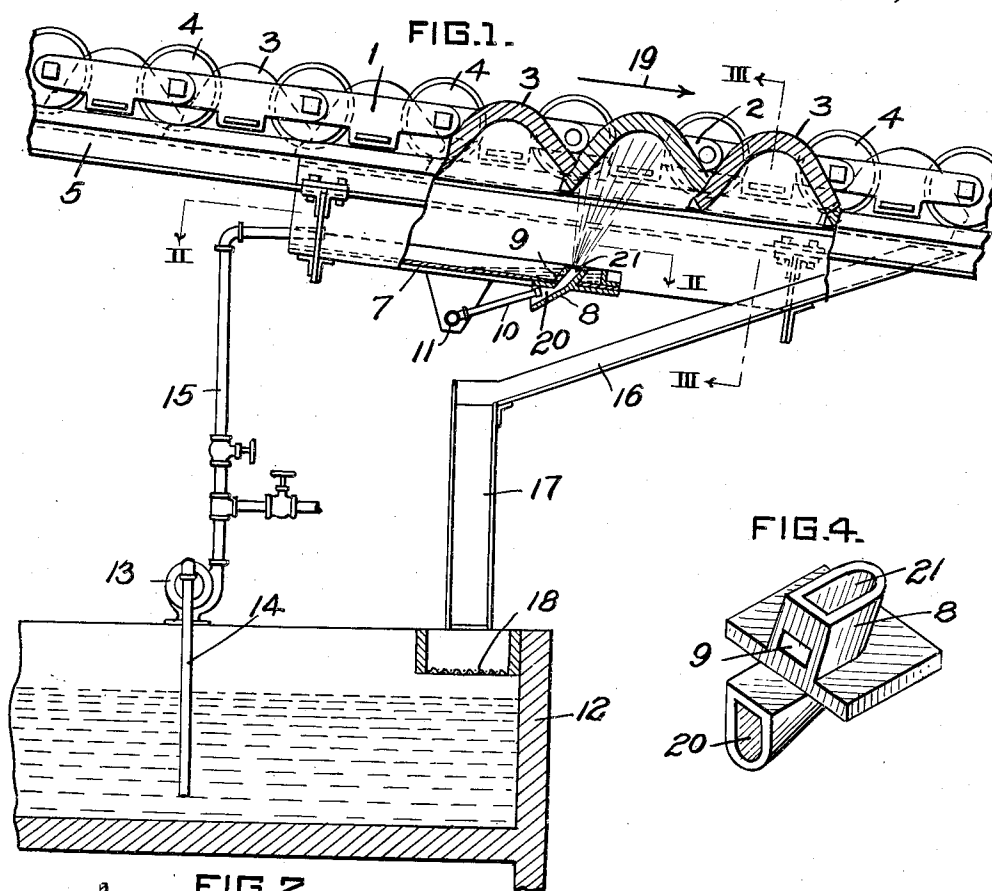


W. T. HURST.
 APPARATUS FOR COATING PIG METAL CASTING MACHINES.
 APPLICATION FILED FEB. 16, 1920.

1,384,760.

Patented July 19, 1921.



WITNESSES
J. Hobart Bradley.

INVENTOR
Willis T. Hurst
by Winter & Brown
his attorneys

UNITED STATES PATENT OFFICE.

WILLIS T. HURST, OF PITTSBURGH, PENNSYLVANIA, ASSIGNOR TO SLAG ROCK MACHINE COMPANY, A CORPORATION OF PENNSYLVANIA.

APPARATUS FOR COATING PIG-METAL-CASTING MACHINES.

1,384,760.

Specification of Letters Patent.

Patented July 19, 1921.

Application filed February 16, 1920. Serial No. 358,892.

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 Apparatus for Coating Pig-Metal-Casting Machines, of which the following is a specification.

The invention relates to machines for casting pig-metal, such as pig-iron or pig-copper, these machines being 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, end 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, and prior to their being again filled with metal, the molds are coated interiorly with a suitable liquid composition, usually white wash, in other words a mixture of lime and water.

The object of the invention is to provide an improved apparatus for coating the molds of such casting machines with the liquid composition. More specifically, the object of the invention is to provide an apparatus for coating the molds whereby a uniform coating may be effected and assured for all the molds, which apparatus will not become clogged by the undissolved particles of lime or by foreign matter, or be otherwise liable to cease its normal operation.

The invention may be understood by explaining the preferred apparatus for practicing it. The apparatus is illustrated in the accompanying drawings of which Figure 1 is a combined side and vertical sectional view of the apparatus shown in its operative position adjacent to the return side of a mold conveyer of a casting machine; Fig. 2 a horizontal sectional view taken on the line II—II, Fig. 1; Fig. 3 a vertical sectional view taken on the line III—III, Fig. 1; and Fig. 4 a perspective view of a detail of construction explained hereinafter.

The general construction and operation of pig-metal casting machines being well understood by those skilled in the art, only a portion of the return side of the mold con-

veyer of such machine is illustrated in the drawings. Such conveyer comprises a pair of conveyer chains 1 and 2, to which there are attached casting molds 3 of any suitable or desired form or construction. The conveyer chains are usually provided at the pivot points of their links with suitable wheels or rollers 4, which, on the return side of the conveyer, rest upon rails or supports 5.

In the practice of the invention the molds 3, which are in inverted positions on the return side of the conveyer, are coated with a liquid composition by causing a jet of pressure fluid, such as steam, air, etc., to impinge upon a stream of such composition maintained adjacent to the molds, the jet of fluid being effective to project the composition upon the molds.

While various specific forms of apparatus may be used to thus coat the molds, the preferred form is that shown in the drawings. Because steam is the preferred pressure fluid, the description of the apparatus will be made with reference to the use of steam. Supported below and adjacent to the molds, there is a liquid container, which preferably takes the form of a downwardly inclined shallow tray or pan 7. The container may, as indicated in the drawings, be suspended from the conveyer rails 5. Extending through the bottom of the container near the lower end thereof there are a plurality of chutes 8, the preferred general shape of each of which is indicated in Fig. 4. As there shown, each chute has a lateral orifice 9 through which the liquid composition flows, an inlet 20 into which steam is directed, and an outlet 21. A steam nozzle 10 attached to a supply pipe 11 is arranged to project steam into each chute inlet 20, which steam impinges upon the stream of liquid composition flowing into the chute through the orifice 9.

Although the supply of liquid composition may be stored in any desired position and be variously transferred to the liquid container, such composition is preferably held in a storage reservoir 12 arranged below the level of the liquid-discharge orifice 9. The liquid composition may be taken from the reservoir 12 by a suitable pump 13 to which there is connected an intake pipe 14 leading from the reservoir, and a discharge pipe 15 leading to the upper end of the container 7.

To the end that the projected liquid which does not adhere to the molds may not be lost, and also that such portions of the stream of liquid, as may flow downwardly through the chutes 8 may also not be lost, there is preferably arranged below the mold conveyer and liquid container a downwardly-inclined catch basin 16, adapted to discharge liquid received by it into a conduit 17 leading to the supply reservoir 12. If desired, a screen 18 may intercept the flow of the liquid received by the catch basin, such screen being conveniently placed below the conduit 17, as indicated.

In operation, the mold conveyer moves continuously in the direction of the arrow 19 and the pump 13 is operated to deliver a continuous supply of liquid to the container 7. The liquid flows from the container 7 through the orifices 9 into the chutes 8, and upon the lower surfaces of the streams there impinge the jets of steam from the nozzles 10. The steam projects the streams of liquid, or a large portion thereof upwardly through the chutes, and, in form of a spray, upon the interior of the molds. The liquid which does not adhere to the molds and which is not projected by the steam jets falls upon the catch basin 16 and is returned to the supply receiver 12.

It is characteristic of the invention that the apparatus cannot become clogged or otherwise rendered inoperative for any reason arising from the mode of operation of the apparatus. The liquid from the container 7 flows in an unimpeded continuous stream of substantially uniform thickness and because thereof a uniform coating of the molds is assured.

According to the provisions of the patent statutes, I have described the principle and operation of my invention with reference to the apparatus which I now consider to be best suited for the practice of the invention. However, I desire to have it understood that, within the scope of the appended claims, the invention may be practised otherwise than as specifically explained and shown herein.

I claim as my invention:—

1. The combination with a pig-metal casting machine, of an apparatus for coating the molds thereof with a liquid composition, said apparatus comprising means for maintaining a flowing stream of said composition adjacent to said mold, and means for projecting a jet of fluid upon said stream of composition to impel it upon the molds.

2. The combination with a pig-metal casting machine, of an apparatus for coating the molds thereof with a liquid composition, said apparatus comprising a shallow-tray supported beneath said molds, means for continuously supplying said composition to said tray, said tray being provided with an orifice for discharging said composition, and a pressure fluid nozzle arranged to project a jet of fluid upon said discharged composition to impel it upon said molds.

3. The combination with a pig-metal casting machine, of an apparatus for coating the molds thereof with a liquid composition, said apparatus comprising means for maintaining a flowing stream of said composition adjacent to said molds, and a steam nozzle below said flowing stream and adapted to project a jet of steam upon the lower side thereof to impel the composition upon said molds.

4. The combination with a pig-metal casting machine, of an apparatus for coating the molds thereof with a liquid composition, said apparatus comprising a supply reservoir below said molds, a liquid container above said reservoir and provided with an orifice adjacent to said molds, a pump and pipe connections for transferring liquid from said reservoir to said container, the liquid flowing in substantially sheet form from the container through said orifice thereof, a steam nozzle below said orifice and adapted to project a jet of steam upon the lower side of the liquid flowing therethrough to impel the liquid upon said molds, and a catch basin between said reservoir and container-orifice for returning unused liquid to the container.

5. The combination with a pig-metal casting machine, of an apparatus for coating the molds thereof with a liquid composition, said apparatus comprising a vertically-disposed chute arranged below and adjacently to said molds, means for causing liquid composition to flow into and transversely of said chute, and means for projecting a jet of steam into the lower end of said chute to impel upon the molds the liquid flowing into the chute.

In testimony whereof I have hereunto set my hand.

WILLIS T. HURST.

Witness:

ALICE A. TRILL.