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APPARATUS FOR COATING MOLDS.

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Fig. 1.

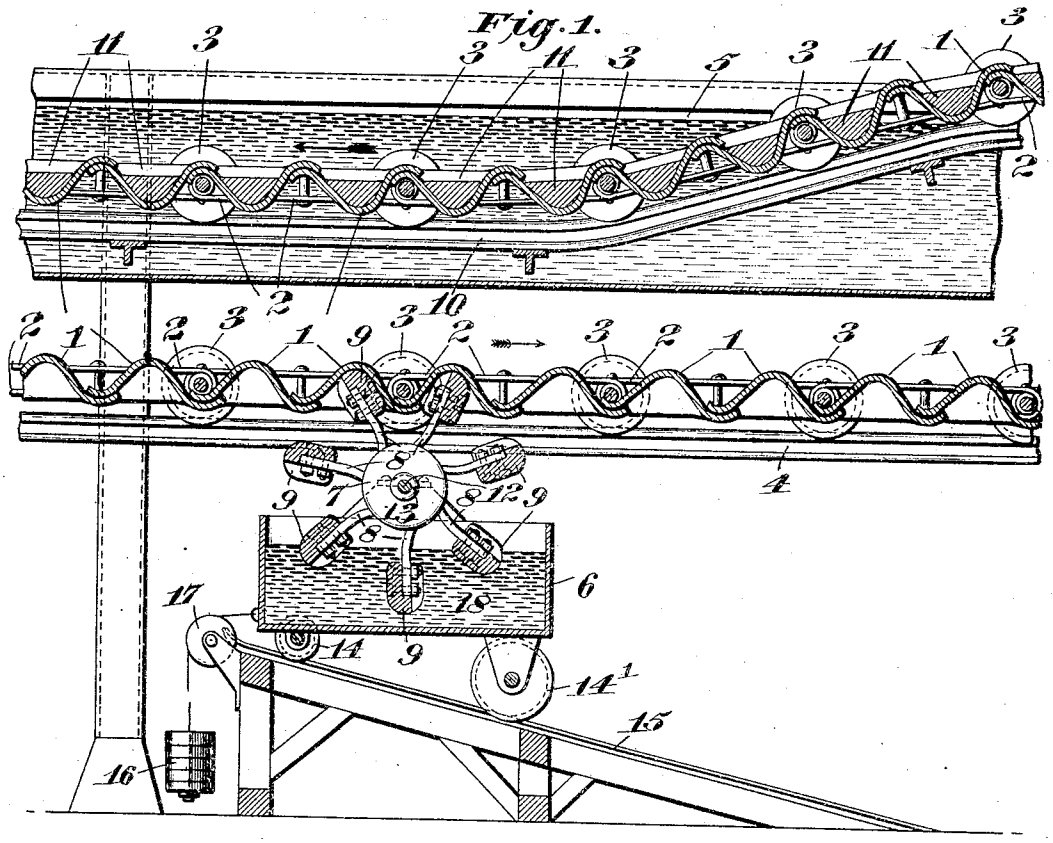


Fig. 2.

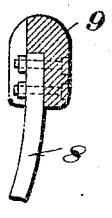
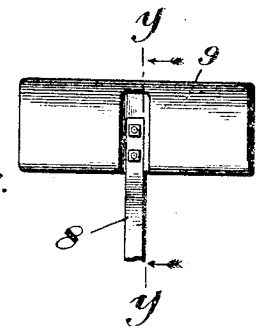


Fig. 3.



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UNITED STATES PATENT OFFICE.

CHARLES MERRITTS AND HENRY L. BARTLEBAUGH, OF JOHNSTOWN, PENNSYLVANIA.

APPARATUS FOR COATING MOLDS.

SPECIFICATION forming part of Letters Patent No. 784,873, dated March 14, 1905.

Application filed September 20, 1904. Serial No. 225,215.

To all whom it may concern:

Be it known that we, CHARLES MERRITTS and HENRY L. BARTLEBAUGH, citizens of the United States, residing at Johnstown, in the county of Cambria and State of Pennsylvania, have invented certain new and useful Improvements in Apparatus for Coating Molds; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to apparatus for coating the molds of metal-casting machines with suitable liquid and preferably viscous substances, whereby a free delivery of the casts is obtained and with the further object of eliminating the wear of and protecting the molds from contact with the hot metal.

Our apparatus is particularly adapted for use with pig-iron-casting machines, the molds of which are supported and moved on an endless carrier, and our invention is herein described and illustrated in the annexed drawings in connection with such a casting-machine.

Heretofore it has been customary to coat the molds of pig-casting machines with carbonaceous material by subjecting the same to the sooty flame or smoke resulting from the imperfect combustion of coal or tar; but this method has been found in practice to be awkward and expensive, as it required a large amount of labor and materials.

Referring now to the annexed drawings, which form part of this specification and in which like figures refer to like parts, Figure 1 is a vertical longitudinal sectional elevation of our apparatus and of a portion of a pig-casting machine, the molds of which are arranged to travel in the direction of the arrow. Fig. 2 is a sectional view of our form of the paddle or swab on the line *y y* of Fig. 3, and Fig. 3 is a side view of said paddle or swab.

Referring to the characters of reference on the drawings, 1 represents a series of molds in their inverted position, said molds being connected by links 2 and supported on wheels 3, which travel on a track 4 in the direction of the arrow to the ladle or reservoir, (not shown,) from which the molten metal is delivered to said molds when in their upright position. The molds then travel forward on the track 10, through a cooling-tank 5, and thence to the end of the track, (not shown,) where the pigs 11 are ejected from the molds into cars in a manner well known to those familiar with the operation of these casting-machines.

Our apparatus for coating the molds is arranged beneath the molds and consists of a tank or box 6, partly filled with tar or other suitable liquid, which tank supports a rimless wheel 7, having spokes or arms 8, each provided with a paddle or brush 9, preferably formed of a block of yielding material, such as wood, secured to each arm 8 and shaped so that it will move smoothly along the inside surface of the mold and distribute the coating substance evenly over said surface. It will be readily understood, however, that the paddle or brush 9 may also be formed of material other than wood, or it may be varied in construction or arrangement, and we wish to reserve the right to all such modifications. We have found that sheet-iron or a combination of sheet-iron with some flexible material, such as rubber or leather, can be used for the application of the coating substance, the only objection being the hardness in the case of sheet-iron or the rapid wear of the brushes if made of some flexible material. On the other hand, the wood being comparatively soft does not injure the molds. At the same time it is hard enough to wear slowly, and its use has been found satisfactory in practice. The wheel 7 is supported on a shaft 12, which revolves in bearings 13, supported on the sides of the tank 6, as shown.

Referring to Fig. 1, it will be noted that the arms 8 are arranged so that while one brush or paddle is coating the bottom and rear side of the mold the next brush or paddle is already in contact with the front side of the next mold. Therefore each mold is coated uniformly on the sides and bottom, and this has been found sufficient, as these are the first portions of the mold struck by the stream

of hot metal. The metal itself then causes the coal tar or other coating substance to flow and protect the ends of the mold.

The tank 6 contains the coating liquid 18 and is mounted on two small wheels 14 and two wheels 14′, the latter being of larger diameter in order to keep the tank horizontal. These wheels travel on the inclined track 15. The tank is held on the track 15 and balanced by means of the counterweight 16, which is suspended over a pulley 17 and connected to the tank 6, as shown in Fig. 1. This arrangement is made to allow the tank 6, carrying the wheel 7, to move along in the same direction as the molds travel, so that if there should be any obstruction in the molds said obstruction could not prevent the revolution of the wheel, as the tank 6 would then move along, thereby lowering said wheel until the arms of same would be released from the molds. The tank would then be drawn back by the counterweight 16 and held in its normal position by the contact of the paddles with the molds, as may be readily understood. This movement would in no way interfere with the liquid or viscous substance in the tank, as the tank is so arranged as to always retain its horizontal position.

Our apparatus is designed and arranged to automatically coat the interior of the molds, as heretofore described, the movement of the paddle-wheel 7 and its attached parts being accomplished by the contact of the paddles or brushes with the interior surfaces of said molds, which latter are traversed in the directions indicated by the arrows by any well-known means. As the paddle-wheel revolves the paddles are successively immersed in the coating liquid contained in the tank, portions of which liquid are thus carried by the paddles to the interior surfaces of the molds, thereby coating the same.

While we have shown our invention as applied to one particular form of casting-machine, it will be readily understood that its use is not limited to the exact construction shown, but it can be operated in connection with any machine having traveling molds for the purposes stated herein.

Although we prefer to use tar or similar material for coating the molds, we wish it understood that any suitable viscous or liquid substances other than tar may be used with our apparatus—such as clay-wash, lime-wash, slurry, or any other substance which would adhere to the surfaces of the molds for the purposes herein described. Furthermore, we do not wish to be limited to the particular form and arrangement of the wheel, paddles, or brushes shown and described, but reserve the right to use modifications thereof without departing from the spirit of our invention as defined by the claims.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In combination with a metal-casting machine having a series of traveling molds, an apparatus for automatically applying to said molds, a viscous or liquid substance, said apparatus consisting of a plurality of brushes or paddles moving in and by contact with the said molds.

2. In combination with a metal-casting machine having a series of traveling molds, an apparatus for coating the said molds with a viscous or liquid substance, said apparatus consisting of brushes or paddles arranged on radial arms mounted on an axle and caused to revolve by the motion of said molds.

3. In combination with a metal-casting machine having a series of traveling molds, an apparatus for applying to said molds a viscous or liquid substance, said apparatus consisting of brushes or paddles mounted at the ends of the radial arms of a rimless wheel arranged to revolve in and by contact with the said molds, a movable tank supporting the said wheel and containing the liquid or viscous substance aforesaid.

4. The combination with a metal-casting machine having a series of traveling molds, of an apparatus for applying to said molds a viscous or liquid substance, said apparatus consisting of brushes or paddles mounted at the ends of the arms of a wheel arranged to revolve in and by contact with the said molds, a movable tank supporting said wheel and mounted on a track beneath the said molds, said tank also containing the viscous or liquid substance aforesaid.

5. The combination with a metal-casting machine having a series of traveling molds, of an apparatus for coating the said molds with a viscous or liquid substance, said apparatus consisting of brushes or paddles arranged at the ends of the arms of a wheel arranged to revolve in and by contact with the said molds, a movable tank mounted on an inclined track beneath the said molds carrying the said wheel and containing the said substance, counterweights attached to the said tank, whereby the same is maintained in position.

6. An apparatus for coating a series of traveling molds composed of a plurality of arms or spokes mounted on an axle and carrying at their ends brushes or paddles adapted to receive a viscous or liquid substance and spread the same within the said molds, said apparatus being operated by the contact of said paddles with the traveling molds.

7. An apparatus for coating a series of traveling molds composed of a plurality of arms or spokes mounted on an axle and carrying at their ends brushes or paddles adapted to take up a portion of a viscous or liquid substance and spread the same within the said molds, a tank carrying the said axle and containing the

said substance, said apparatus being operated by the contact of said paddles with the traveling molds.

8. An apparatus for coating a series of traveling molds comprising a plurality of radial arms or spokes mounted on an axle and carrying at their ends brushes or paddles adapted to take up a portion of a viscous or liquid substance and spread the same within the said molds, a movable tank carrying the said axle and containing the said viscous substance, an inclined track supporting the said tank whereby the said radial arms may be released from the molds through the downward motion of the said tank, said paddles being operated by the traveling movement of the molds aforesaid.

9. An apparatus for coating molds, composed of a plurality of arms or spokes mounted on an axle and provided at their ends with paddles or brushes, said apparatus being operated by the contact of the paddles with the traveling molds, whereby the said molds are coated with a liquid or viscous substance.

10. An apparatus for coating a series of traveling molds composed of a plurality of radial arms or spokes mounted on an axle, a paddle at the end of each of the said arms or spokes consisting of a block of wood secured thereto, a movable tank carrying the said axle and containing a viscous or liquid substance which is taken up by the said paddles or brushes and spread thereby within the molds aforesaid, the movement of said paddles being accomplished by their contact with the molds aforesaid.

11. The combination in an apparatus for coating a series of traveling molds, of a rotary wheel carrying brushes or paddles, a tank containing the coating substance, wheels supporting said tank, an inclined track on which said latter wheels travel, a counterweight for maintaining the tank in operative position, said apparatus being operated by the contact of said paddles with the surfaces of the traveling molds aforesaid.

In testimony whereof we hereto affix our signatures in the presence of two witnesses.

CHARLES MERRITTS.
HENRY L. BARTLEBAUGH.

Witnesses:
GEO. BEATTY,
STONE EDELEN.