

L. W. JONES.
DETACHABLE PUDDLE BLADE.
APPLICATION FILED MAR. 24, 1921.

1,409,112.

Patented Mar. 7, 1922.

FIG. 1.

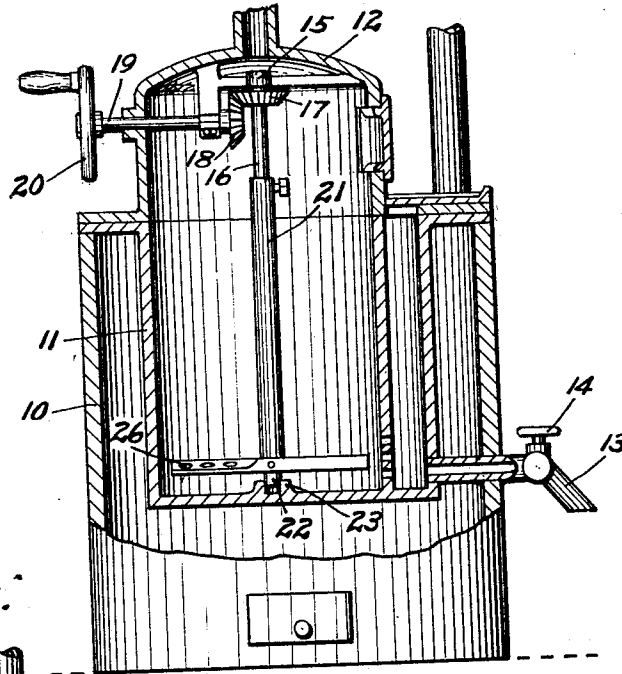


FIG. 2.

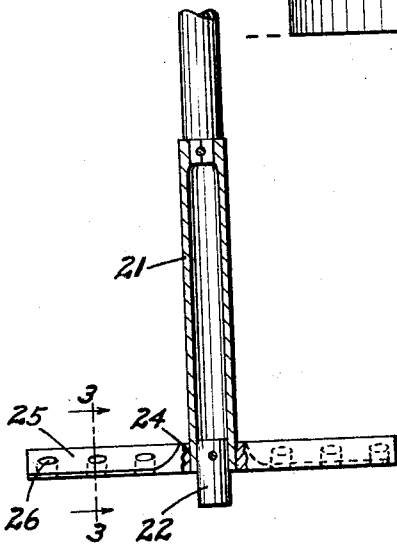
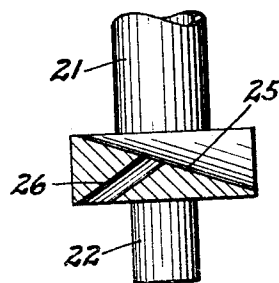


FIG. 3.



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DETACHABLE PUDDLE BLADE.

1,409,112.

Specification of Letters Patent.

Patented Mar. 7, 1922.

Application filed March 24, 1921. Serial No. 455,215.

To all whom it may concern:

Be it known that I, LOUIS W. JONES, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Detachable Puddle Blades, of which the following is a specification.

My invention relates generally to metal melting pots, and more particularly, to a detachable puddling blade that is arranged for operation in the lower portion of the melting pot and which, in operation, is instrumental in effecting a very thorough mixing of the molten metal.

The subject-matter of my present invention is an improvement upon the melting pot disclosed in my co-pending application, filed December 6, 1920, Serial No. 428,731.

The principal objects of my invention are, to generally improve upon and simplify the construction of certain parts of the melting pot disclosed in my co-pending application aforesaid, to provide a puddling blade that is particularly applicable for use in pots that are utilized for the melting and remelting of type, linotype and stereotype metal and which metal, it will be understood, includes, in its composition, lead, tin and antimony, further, to provide the puddling or mixing blade with a hollow carrier that extends downwardly through the body of metal within the pot and which is effective in absorbing a considerable portion of the expansion of metal as it cools, thereby relieving the walls of the pot of excessive expansive pressure, and, further, to provide a melting pot with a puddling blade and carrier that may be easily and quickly removed for the purpose of adjustment or repairs.

With the foregoing and other objects in view, my invention consists in certain novel features of construction and arrangement of parts that will be hereinafter more fully described and claimed and illustrated in the accompanying drawings, in which—

Fig. 1 is a vertical section taken centrally through an ordinary form of melting pot and showing the same equipped with my improved puddling or mixing blade.

Fig. 2 is a vertical section taken through the center of the puddling blade carrier, with the blade in position on the lower portion thereof and with a part of said blade in vertical section.

Fig. 3 is an enlarged cross section taken on the line 3—3 of Fig. 2.

Referring by numerals to the accompanying drawings, which illustrate a practical embodiment of my invention, 10 designates the cylindrical wall of a furnace, 11 the melting pot that is supported in any suitable manner in the upper portion of the furnace chamber, 12 the removable cap or top piece for the pot and furnace, and 13 the spout through which the molten metal is discharged, and said spout being provided with a suitable discharge control valve 14.

Journalled in a bearing 15 that is arranged in the upper portion of cap 12, is the upper end of a vertically disposed shaft 16, and fixed thereon, beneath said bearing 15, is a beveled pinion 17. This pinion meshes with a corresponding beveled pinion 18 that is carried by the inner end of a horizontally disposed shaft 19, the same being journalled in suitable bearings that are formed on cap 12 and the outer end of said shaft carrying a hand wheel 20.

Detachably connected to the lower end of shaft 16, is a vertically disposed tubular member 21 that extends downwardly through the center of the pot 11 and the lower end of said tubular member being provided with a plug or pin 22 that normally occupies a bearing 23 that is formed in the bottom of the melting pot.

The length of the tubular member 21 and the arrangement of the pin 22 in the lower end thereof, is such that the lower portion of said pin normally occupies a position in the upper portion of the bearing 23, so that, when the upper end of tubular member 21 is disconnected from shaft 16, the parts can be moved downward a sufficient distance with the pin 22 entering bearing 23 so as to readily disconnect the upper end of tubular member 21 from shaft 16.

The puddling or mixing blade contemplated by my invention is formed of a single piece of metal, the central portion of which is substantially rectangular in cross section and provided with an aperture that receives the lower end of tubular member 21. The upper portions of the arms of the blade are cut away, so as to provide inclined faces such as 25, the same extending entirely across the upper surfaces of the arms, and, by virtue of such construction, each arm of the blade is substantially tri-

angular in cross section, with an inclined or beveled upper face.

Formed through the arms of the blade and leading from the medial line on the inclined or beveled face downwardly and rearwardly to the underface of the arm, at points adjacent to its rear edge, are inclined apertures such as 26.

In the operation of my improved melting pot, hand wheel 20 is manipulated to rotate shaft 19, and the rotary motion thereof is transmitted through beveled pinions 18 and 17, to vertically disposed shaft 16 and the puddler blade carrying member 21, and, as said blade traverses a horizontal path in the lower portion of the pot, the arms of said blade to the sides of the centrally arranged tubular member 21, will pass through the metal in the lower portion of said pot, thereby dividing said metal so that a part of it is caused to travel upwardly over the inclined or beveled top surfaces 25, and portions of the molten metal will pass downwardly and rearwardly through the inclined openings 26, with the result that a very thorough agitation and mixture of the metal is effected.

It will be understood, that the ordinary type metal, or metal having a certain proportion of antimony, expands as it cools and becomes hardened, and in order to relieve the walls of the pot 11 from pressure due to this expansion, I form the carrier for the puddling or stirring blade in the form of a tube and make the wall thereof relatively thin, so that said carrier will absorb the greater portion of the pressure due to the expansion of the type metal while cooling, and thus relieving the walls of the pot from strains and internal pressure which might result in breakage of said pot.

A puddling blade of my improved construction is comparatively simple, can be easily and cheaply produced, is effective in very thoroughly mixing the molten metal in which it is immersed, and said blade is mounted so that it can be easily and quickly removed from the pot for the purposes of adjustment or repair.

It will be readily understood that minor changes in the size, form and construction of the various parts of my improved puddling blade may be made and substituted for those herein shown and described without departing from the spirit of my invention, the scope of which is set forth in the appended claims.

I claim as my invention:

1. A puddling blade for melting pots

formed in a single piece comprising a pair of oppositely disposed arms, the upper surfaces of which are inclined, and there being openings formed through said arms and extending downwardly and rearwardly from said inclined upper surfaces.

2. The combination with a type metal melting pot, of a tubular shaft arranged for operation within said pot, the wall of which shaft is relatively thin, and a puddling blade carried by the lower portion of said tubular shaft, said blade being provided with an inclined top surface and there being inclined openings formed through said blade and leading downwardly and rearwardly from said inclined top surface.

3. The combination with a type metal melting pot, of a tubular shaft arranged for operation within said pot, a puddling blade carried by the lower portion of said tubular shaft, and means for rotating said tubular shaft, said blade being substantially triangular in cross section, there being downwardly and rearwardly inclined openings formed through said blade.

4. The combination with a type metal melting pot, of a shaft arranged for rotation in the upper portion of said pot, a tubular shaft detachably connected to said rotatably mounted shaft and extending downwardly through the pot, the wall of which tubular shaft is relatively thin, a bearing for the lower end of said tubular shaft, and a puddling blade carried by the lower portion of said tubular shaft, said blade having an inclined top surface and there being openings formed through said blade and leading downwardly and rearwardly from the inclined top surface thereof.

5. The combination with a type metal melting pot, of a rotatably mounted shaft in the upper portion of said pot, a tubular shaft, the wall of which is relatively thin, a puddling blade carried by the lower portion of said tubular shaft, and a bearing for the lower portion of said tubular shaft, which bearing permits said shaft to be moved bodily downward when the upper portion thereof is disconnected from the rotatably mounted shaft, said blade being substantially triangular in cross section with an inclined upper surface, there being openings formed through said blade and leading downwardly and rearwardly from said inclined top surface.

In testimony whereof I have signed my name to this specification.

LOUIS W. JONES.