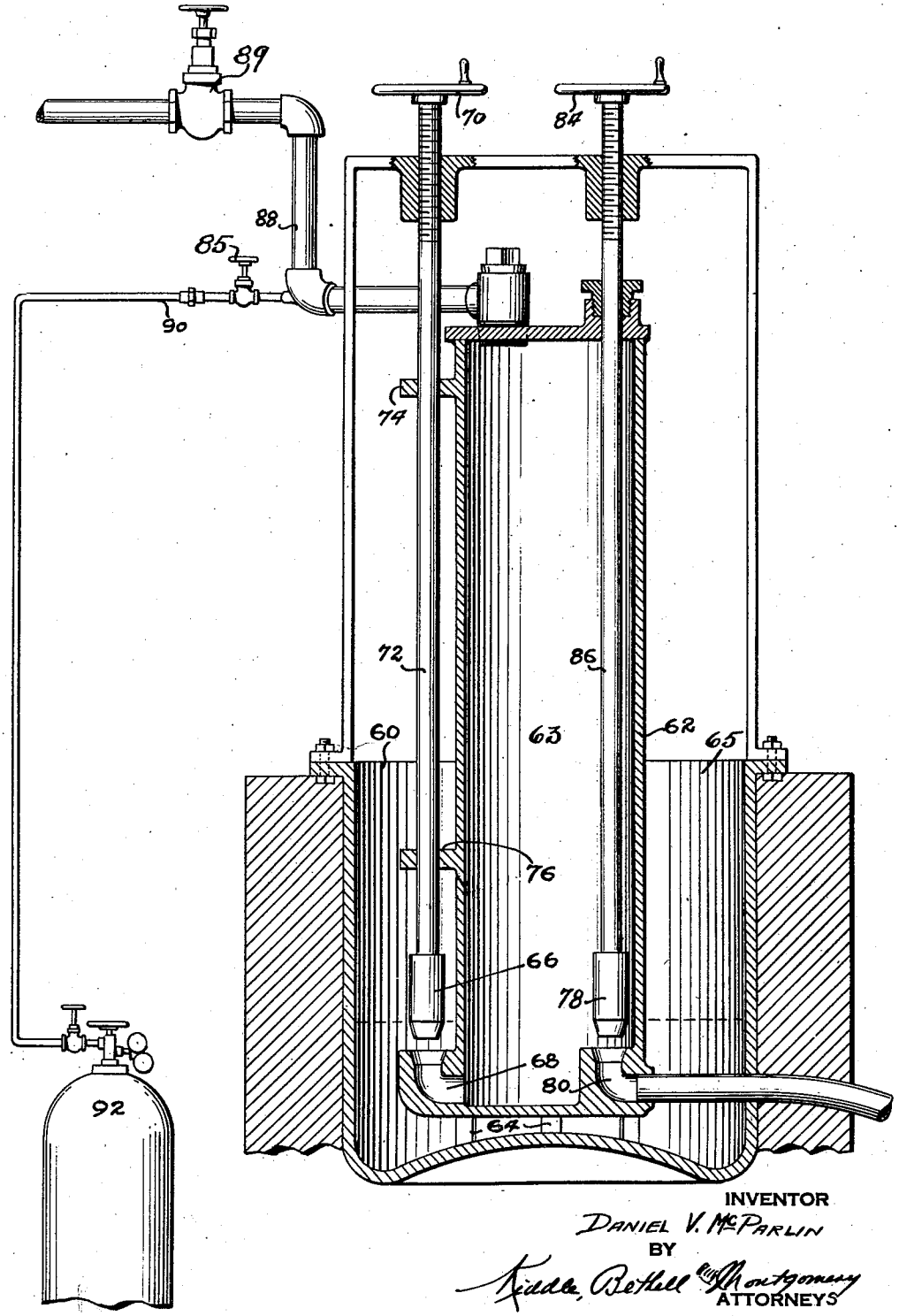
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MELTING POT

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INVENTOR
DANIEL V. McPARLIN
BY
Kidde, Bethell & Montgomery
ATTORNEYS

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MELTING POT

Daniel V. McParlin, Passaic, N. J., assignor to The Okonite-Callender Cable Company, Incorporated, Paterson, N. J., a corporation of New Jersey

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6 Claims. (Cl. 207—1)

This invention relates to a new and improved method of preparing metals for extrusion and to an improved melting pot for use in connection with such method.

My improved melting pot comprises two chambers, one within the other. One of these chambers I shall call a melting chamber and the other a charging chamber. A mass of the metal to be extruded is melted in the melting chamber and then passed, one charge at a time, to the charging chamber which has been evacuated of air, from whence it is discharged directly to the lead press. This avoids oxidation of the metal, one of the difficulties heretofore experienced with metal extrusion.

Further objects of the present invention will be manifest from the following description and the accompany drawing.

The drawing is a sectional elevational view of a melting pot constructed in accordance with my invention.

Referring to the drawing in detail, 60 designates a melting-pot which may be heated in any suitable manner. This melting pot 60 encloses a charging pot 62 which provides an air tight charging chamber 63. The charging pot is supported in the melting pot in any suitable fashion as by means of standards or uprights 64, for example.

The walls of the charging pot 62 and the melting pot 60, it will be noted, are spaced from each other thereby to provide a melting chamber 65.

The melting chamber 65 communicates with the charging chamber 63 through inlet port 68 which is below the surface of the molten metal in the mixing chamber, whereby molten metal can be charged into the chamber 63 without oxidation.

The port 68 is controlled by a valve 66. This valve is operated by means of a handwheel 70 which is carried on the projecting end of the valve stem 72 which is rotatably mounted in guide brackets 74 and 76 on the wall of the charging pot 62.

The charging pot 62 is provided with an outlet port 80 leading to the extrusion chamber of a lead press (not shown). This outlet is controlled by means of a valve 78 similar to the valve 66. The valve 78 is operated by a handwheel 84 on the projecting end of the valve stem 86.

The charging chamber 63 is equipped with a vacuum line 88 controlled by a valve 89, whereby the charging chamber may be evacuated of air.

Connected into the vacuum line 88 intermediate the valve 89 and the chamber 63 is a gas line 90 leading from tank 92. This gas line may, however, be connected directly into the chamber 63 if desired. The supply tank 92 contains an inert gas such as nitrogen, for example.

In practicing my invention, the metal to be extruded, lead, for example, is charged into the open melting pot 60 and the melting pot heated to melt the lead. Both of the valves 66 and 78 are closed. The valve 89 is now opened and a vacuum drawn on the chamber 63, after which the valve 66 is opened to permit of a single charge of the molten metal to pass from below the surface of the molten metal through the port 68 into the charging chamber 63. The valve 78, of course, at this time is closed.

After a single charge of molten metal has passed into the charging chamber 63 the valves 66 and 89 are closed and valve 85 opened to admit inert gas to the chamber 63 to break the vacuum therein.

The discharge valve 78 is then opened to permit the charge of molten metal to pass from the chamber 63 directly to the extrusion chamber of the lead press.

The discharge valve 78 is then closed and the apparatus is ready for the next cycle.

It will be seen from the foregoing that my invention provides a method and apparatus whereby oxidation of the metal is reduced to a minimum, in that the metal is withdrawn by charges from below the surface of the molten mass in the melting chamber; drawn into a chamber which is under vacuum and from it discharged directly into the lead press without contact with the atmosphere.

It is to be understood that various changes and modifications may be made in the apparatus and method herein described without departing from the spirit and scope of my invention.

What I claim is:

1. In apparatus of the class described, the combination of a melting pot comprising a melting chamber, a closed chamber within said melting chamber, a port in the wall of said closed chamber, a valve for controlling said port, manually operated means for opening and closing said valve, whereby the molten metal may be charged in individual charges into said closed chamber from beneath the surface of the molten mass in the melting chamber, and means for placing each charge under vacuum in the closed chamber.

2. In apparatus of the class described, the combination of a melting pot comprising a melting chamber, a closed chamber within said melting

chamber and surrounded by the molten metal therein, a port in the wall of said closed chamber, a valve for controlling said port, manually operable means for opening and closing said valve, whereby individual charges of molten metal may be charged to said closed chamber from the melting chamber before the admission of a charge of molten metal thereto, means for evacuating said closed chamber, and means for admitting an inert gas to said closed chamber after the admission of a charge of molten metal thereto to break said vacuum.

3. In apparatus of the class described, the combination of a melting pot comprising a melting chamber, a closed chamber within said melting chamber and surrounded by the molten metal therein, a port in the wall of said closed chamber, a valve for controlling said port, manually operable means for opening and closing said valve, thereby to admit individual charges of molten metal to said closed chamber from the melting chamber, means for drawing a vacuum on said closed chamber after the admission of a charge of metal thereto, means for admitting an inert gas to said closed chamber to break said vacuum, an outlet port for discharging the individual charges of molten metal directly to an extrusion chamber of a press, and a manually operable valve controlling said outlet port.

4. In a device of the class described, the combination of a melting pot, a closed container within said pot spaced from the walls thereof to provide a melting chamber, a port in the wall of said container providing communication between said melting chamber and said closed container, a valve manually operable from the exterior of said pot for regulating the admission of molten lead through said port to said closed chamber whereby molten lead can be admitted a charge at a time to said closed chamber, a vacuum line connected to said closed chamber, and means for supplying an inert gas to said closed chamber.

5. In a device of the class described, the combination of a melting pot, a closed container within said pot spaced from the walls thereof to provide a melting chamber, a port in the wall of said chamber below the level of molten metal in said melting pot and providing communication between said melting chamber and said closed container, a valve manually operable from the exterior of said pot for regulating the admission of molten lead through said port to said closed chamber whereby molten lead can be admitted a single charge at a time to said closed chamber, a vacuum line connected to said closed chamber whereby to evacuate the same, means for supplying nitrogen gas to said closed chamber to break the said vacuum, and a manually controlled port for discharging the molten metal from said closed chamber directly to the extrusion chamber of a lead press.

6. In a device of the class described, the combination of a melting pot, a closed chamber within said pot spaced from the walls thereof to provide a melting chamber, a port in the wall of said chamber below the level of the molten metal in said melting chamber and providing communication between said melting chamber and said closed chamber, a valve manually operable from the exterior of said pot for regulating the admission of molten lead through said port to said closed chamber whereby molten metal can be admitted a single charge at a time to said closed chamber, a vacuum line connected to said closed chamber whereby to evacuate the same, means for supplying an inert gas to said closed chamber to break said vacuum, a discharge port in the bottom of said closed chamber providing for gravity flow of molten metal directly to the extrusion chamber of a lead press, and a manually controled valve in said last-mentioned port for regulating the flow of metal through said port.

DANIEL V. McPARLIN.

CERTIFICATE OF CORRECTION.

Patent No. 2,185,376. January 2, 1940.

DANIEL V. McPARLIN.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 2, first column, lines 8 and 9, claim 2, strike out the comma and words ", means for evacuating said closed chamber" and insert the same after "chamber" in line 7, same claim; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 20th day of February, A. D. 1940.

Henry Van Arsdale,
Acting Commissioner of Patents.

(Seal)