

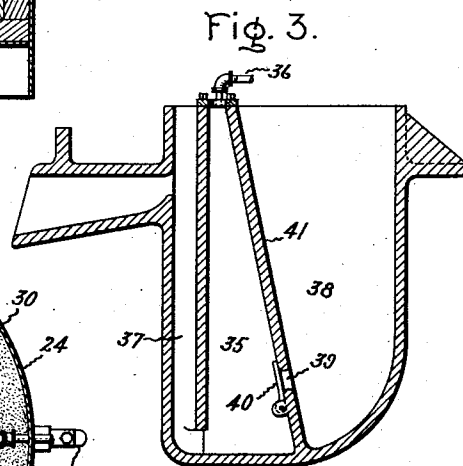
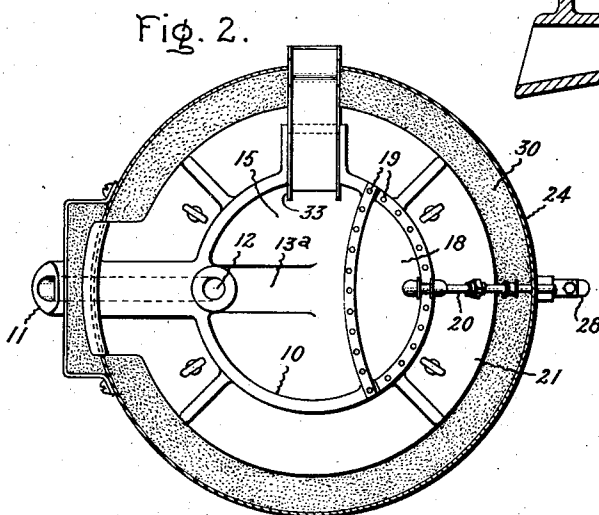
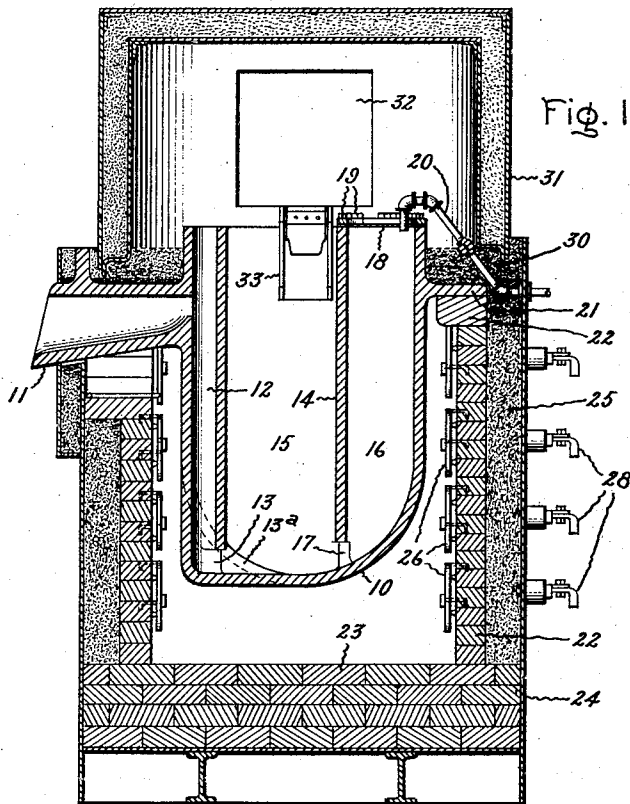
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A. N. OTIS

METAL POT

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Inventor:
Albert N. Otis,

by *Wm. S. Smith*
His Attorney.

UNITED STATES PATENT OFFICE.

ALBERT N. OTIS, OF SCHENECTADY, NEW YORK, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

METAL POT.

Application filed October 12, 1925. Serial No. 61,895.

My invention relates to pots for containing molten metals, and has for its object the provision of means whereby the metal may be conveniently poured off so as to leave in the pot the dross and other impurities floating on the surface.

My invention has particular application to lead melting pots although it obviously has application to pots for melting or containing various other metals or alloys of metals.

In carrying out my invention in one form I connect the pouring spout with the bottom of the pot and force the molten metal out through the spout by applying a fluid pressure to the surface of the molten metal.

For a more complete understanding of my invention reference should be had to the accompanying drawing in which Fig. 1 is a sectional view of a lead melting pot embodying my invention; Fig. 2 is a plan view of the device shown in Fig. 1 with the cover removed; while Fig. 3 is a sectional view showing a modification of my invention.

Referring to the drawing, I have shown my invention in one form as applied to a lead melting pot of substantial capacity such as may be used, for example, in supplying molten lead to machines for applying a lead sheath to cables. The metal melting pot comprises a receptacle 10 which may be of any suitable shape and is shown as being substantially cylindrical with its axis vertical. A pouring spout 11 is provided near the top of the receptacle. This spout is connected through a duct 12 with the bottom of the receptacle. The duct 12 extends vertically along the side of the receptacle adjacent the spout 11, its upper end being open for convenience in cleaning, and its lower end communicating through an inlet orifice 13 with a depression or groove 13^a forming the lowest point of the receptacle. As shown the receptacle is provided with a concave or substantially semispherical bottom, the depression 13^a being formed by extending the bottom wall outward laterally at a point just below the duct 12.

The receptacle is provided with a substantially vertical partition wall 14 which divides it into two chambers 15 and 16 communicating with each other at the bottom of the receptacle through an opening 17. The chamber 16 is shown somewhat smaller than the chamber 15 although it may be of any suit-

able size, and it is provided with a tight cover 18, shown as a plate which is secured in place by clamping screws 19. A pipe 20 extends through the cover 18 through which a suitable fluid, preferably a gas, such as air, may be admitted under pressure into the chamber 16 when it is desired to pour molten metal from the spout 11. When the air under pressure is admitted through the pipe 20 the molten metal in the chamber 16 is forced out through the opening 17 into the chamber 15. Consequently the molten metal in the chamber 15, and likewise in the duct 12, rises until the molten metal overflows and runs out through the spout 11. It will be observed that the molten metal is carried off by the duct 12 from the bottom of the pot and consequently the metal when poured is free from dross and other impurities floating on the top. It will also be observed that with this arrangement it is unnecessary to tilt the pot in order to pour. This is a decided advantage particularly where large quantities of metal are being handled.

When all or a substantial part of the metal in the chamber 16 has been forced out, the pipe 20 may be connected to the outside air. This relieves the pressure in the chamber 16 and the molten metal in the chamber 15 accordingly flows into the chamber 16 until the metal in the two chambers assumes the same head or level. After the pot has been recharged, additional metal may be poured.

In the particular arrangement shown electric heating means is associated with the receptacle 10 so that the metal may be melted in the receptacle, although it will be understood that my invention may be used independently of the heating means. In fact no heating means may be used in certain applications, for example, in case the pot is used as a mixing device, such as in the making of alloys.

As shown the receptacle 10 is provided with a flange 21 near the top which rests upon a supporting wall made of heat refractory bricks 22 surrounding the pot. A heat refractory brick bottom 23 is also provided. The entire device is provided with a metal casing 24, suitable powdered heat refractory insulating material 25 being provided between the side wall of the casing and the bricks 22. Suitable heating resistors 26 are provided in the interior of the chamber,

these resistors being hung upon metallic pins 26 which are secured in the bricks 22. The heating resistors encircle the receptacle 10 in close proximity thereto. The terminals of the resistors are brought out to suitable connectors 28.

The metallic casing 24 extends upward above the flange 21 somewhat, and the annular space thereby provided is filled with loose sand 30 which forms an airtight seal for a cover 31, the lower edge of which sets in the sand. An opening 32 is provided in the cover through which the pot may be charged, a chute 33 being provided for this purpose.

In the modified form shown in Fig. 3 the chamber 35 to which compressed air is admitted through a pipe 36 is placed next to the pouring duct 37. The chamber 38 is connected to the chamber 35 at or near the bottom of the pot through an opening 39 which is provided with a one way valve 40. This valve is arranged to permit the molten metal to flow from the chamber 38 into the chamber 35 until the metal has the same level in both chambers, it being assumed that the chamber 35 is open so that atmospheric pressure exists in that chamber. When the air pressure in the chamber 35 is increased by admitting air through the pipe 36 the valve 40 closes thus preventing the return flow of molten metal into the chamber 38 and the molten metal is, therefore, forced out through the duct 37. As shown the valve 40 is pivoted below the opening 39, which is preferable for a lead melting pot since the valve made of iron will float in the much denser lead.

In this modified form of my invention the wall 41 between the chambers 35 and 38 is shown as inclined so that the walls of the chamber 35 are divergent and the cross sectional area of the chamber 35 gradually increases toward the bottom of the pot. This provides for a gradually increased pouring rate as the chamber 35 is emptied. Obviously, the wall 14 of the form shown in Fig. 1 could likewise be inclined to provide for a gradual increasing cross sectional area of the chamber 16 toward the bottom of the pot.

While I have described my invention as embodied in concrete form and as operating in a specific manner in accordance with the provisions of the patent statutes, it should be understood that I do not limit my invention thereto since various modifications thereof will suggest themselves to those skilled in the art without departing from the spirit of my invention, the scope of which is set forth in the annexed claims.

What I claim as new and desire to secure

by Letters Patent of the United States is:—

1. A molten metal pot comprising a receptacle, a partition in said receptacle dividing said receptacle into a plurality of chambers communicating with each other, said receptacle being provided with an outlet duct extending downward into one of said chambers, and means for forcing the molten metal out of the other of said chambers, into the first whereby said metal is caused to flow out through said duct.

2. A molten pot comprising a receptacle, a partition in said receptacle dividing said receptacle into a plurality of chambers communicating at their bottoms, an outlet spout near the top of one of said chambers, said chamber being provided with a duct connecting said spout with the bottom thereof, and means for forcing the molten metal out of the other of said chambers into the first whereby said metal is caused to flow out through said duct.

3. A molten metal pot comprising a receptacle, a partition in said receptacle dividing said receptacle into a plurality of chambers communicating at their bottoms, said receptacle being provided with an outlet duct extending downward into one of said chambers and having its outlet orifice near the top of said receptacle, the other of said chambers being closed, and means for admitting a compressed gas into said closed chamber whereby the molten metal therein is forced into said first chamber and thereby caused to flow out through said duct.

4. A lead melting pot comprising a receptacle, a partition in said receptacle dividing said receptacle into a plurality of chambers communicating at their bottoms, a spout opening into one of said chambers near the top thereof, said chamber being provided with a duct connecting said spout with the bottom of said chamber, a tight cover for the other of said chambers, means for admitting a compressed gas into said second chamber whereby the molten metal therein is forced into said first chamber and thereby caused to flow out through said duct.

5. A molten metal pot comprising a receptacle provided with an outlet duct communicating with said receptacle at the bottom thereof, said duct having its outlet near the top of said receptacle, and means for forcing the molten metal in said receptacle out from the bottom of said receptacle through said duct, said receptacle having walls divergent toward the bottom to gradually increase the pouring rate as the receptacle is emptied.

In witness whereof, I have hereunto set my hand this 10th day of October, 1925.

ALBERT N. OTIS.