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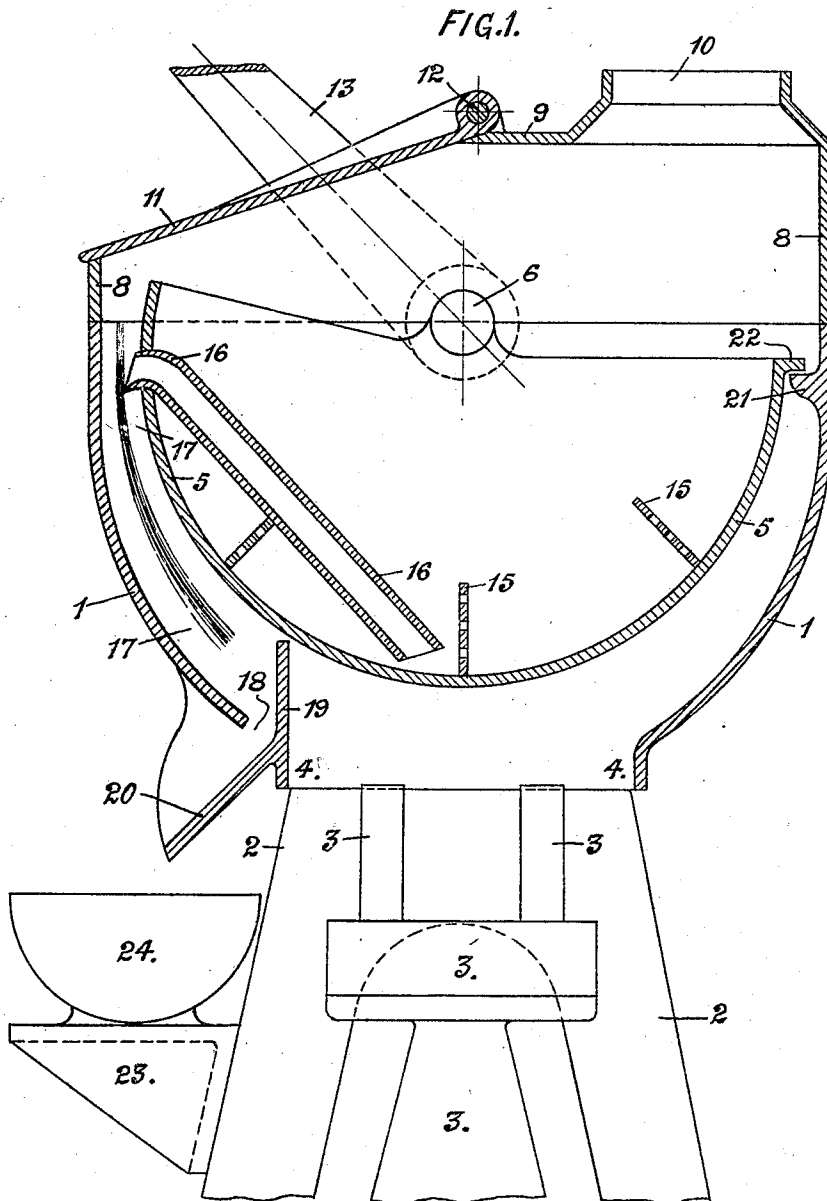
H. W. V. WILSON

1,483,030

FURNACE FOR MELTING STEREO AND SIMILAR METALS, AND OTHER MATERIALS

Filed Oct. 24, 1922

2 Sheets-Sheet 1



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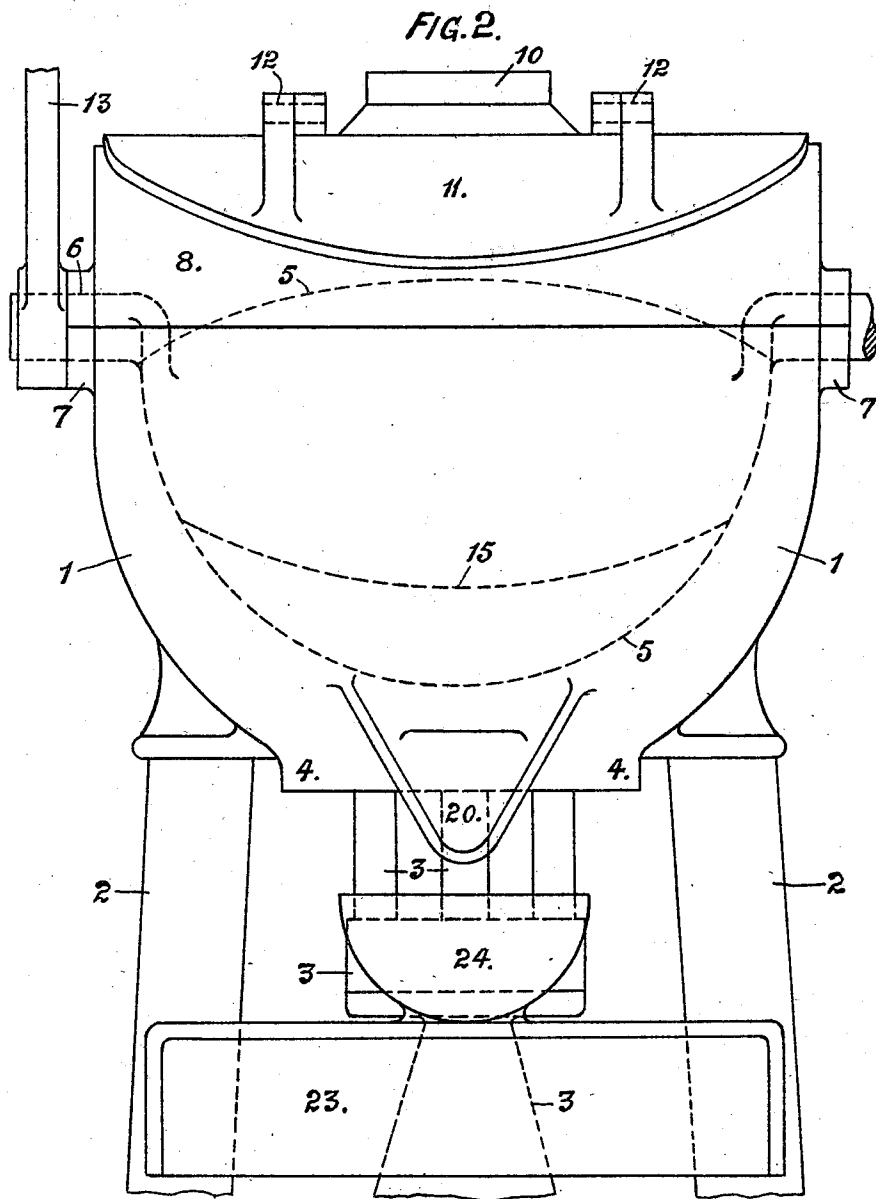
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UNITED STATES PATENT OFFICE.

HERBERT W. V. WILSON, OF MEOLS, ENGLAND.

FURNACE FOR MELTING STEREO AND SIMILAR METALS AND OTHER MATERIALS.

Application filed October 24, 1922. Serial No. 596,642.

To all whom it may concern:

Be it known that I, HERBERT WILLIAM VICTOR WILSON, a subject of the King of England, and residing at Meols, in the county of Chester, England, have invented Improvements in or Connected with Furnaces for Melting Stereo and Similar Metals and Other Materials, of which the following is a specification.

This invention has reference to furnaces for melting stereo and similar metals, and other materials which melt at a relatively low temperature; and it relates to a type of furnace in which the metal or material is contained in a pot or vessel adapted to be moved about hinges, the heat being applied to and around the bottom of same by suitable heating medium; and is particularly directed to means for stirring the metal in moving the pot on its support and to pouring means for the metal.

In the furnaces hereinafter described, the improvements under the invention are comprised.

The pot or vessel in which the metal or material is contained and heated is enclosed within and adapted to oscillate on a horizontal axis in an outer case, and is provided with means or devices by which when it is moved about its axis, as in pouring, the metal or material will be stirred or mixed, so that in the case of metal being a mixture of different metals, which are liable to settle out by gravity when quiescent, these metals are re-mixed so that the character and quality of the metal mixture poured will be maintained and constant.

Further, in this furnace, the metal poured from the pot or container is taken from the bottom by employing a duct leading from the bottom to the level of pouring, the top of which is in the form of a spout.

Adjacent to the pouring spout and front of the pot, in the outer casing or vessel in which it is disposed and works, a channel or duct is formed, in which the spout moves in tilting the pot, and down which the metal runs to the discharge lip or runner below. By this means the metal is prevented from splashing sidewise, and is conducted as desired in a body to the discharge aperture or runner, which say is near the bottom of the outer vessel or case.

The furnace according to this invention is illustrated in the annexed drawings, in which

Figure 1 is a cross sectional elevation and Figure 2 a front view.

Referring to the drawings, 1 is the lower part of the outer metal case or body of the furnace, supported from below upon the legs 2; 3 is the heating burner, disposed below the opening 4 in the bottom of the case 1; 5 is the metal pot or vessel in which the metal or material is contained and heated; having on each side a trunnion 6, mounted and working in bearings 7 on the sides of the case 1; and 8 is the upper separate part of the outer case or body 1, having on its roof 9 a gas discharge neck or flue 10 at the back, and a lid 11 hinged at 12 at the front. 13 is a handle fixed on one of the trunnions 6, by which the pot 5 is oscillated about the trunnions.

The means or devices by which the melted metal or material, when the pot 5 is moved about its trunnions, as when in pouring the metal, will be stirred or mixed automatically, are marked 15, and in the case shown consist of perforated plates or paddles, disposed radially to the axis of the pot.

The pouring duct is marked 16, and it extends down to the bottom of the pot, the upper part projecting through the pot 5, and being in the form of a spout, so that the metal taken and poured from the pot or container when tipped, is taken from the bottom. The front portion of the pot or container 5, extends up above the spout of the duct 16.

The discharge mouth of the duct 16 should be disposed at a point just above the highest level of the molten metal.

In the front of the case or body 1, there is a gutter or way 17, at the bottom of which is a delivery aperture 18 and beyond which is an upwardly projecting plate 19 extending across the body; and beneath the aperture 18, there is an inclined delivery runner 20, or discharge lip; and upon tipping the pot, and pouring, the metal will be conducted by the channel 17 to the aperture 18 and runner 20.

A stop 21 is provided in the case 1, against which a lug 22 on the back of the pot 5 comes when it is moved back after pouring.

On the legs 2 there is fixed a bracket 23, to serve as a support for the receiving ladle or ingot mould 24.

In operation, the pot or container 5 is tilted until the level of the molten metal

risers above the spout or outlet orifice of the duct 16, when the metal from the bottom issues from it; and passing down through the duct 17 in the outer furnace case, and by way of the discharge spout or runner 20, flows into the ladle or mould 24 in a perfectly clean state.

This tilting action forward, and the reverse tilting action after pouring, also causes the mixing or stirring vanes or devices 15 to act on the metal as it passes over or through them, alternately in opposite directions; and so automatically maintains a complete mixture and liberates any foreign matter, and allows it to rise to the surface.

Whilst these objects are accomplished, the dross and impurities float on the surface, and cannot get into the ladle or mould; and by the retention of the floating dross, oxidation is prevented. And as regards the means or mode of effecting the mixture of the metals, and maintaining them in the desired state, this is effected simply and without the use of mechanically operated stirring devices, so that whilst the effect desired is accomplished, it is at practically little cost; and expense of keeping moving parts in repair and action is avoided; and on the whole, the objects and effects of the invention are attained without cost and difficulty of maintenance, and pumps and valves and mechanical mixing or agitating appliances for accomplishing these effects, are rendered unnecessary.

What is claimed is:—

1. A furnace for melting stereo and other metals or materials, comprising an outer casing, a material containing pot arranged within the casing, means for oscillating said pot about a horizontal axis, and means for causing the mixing of the contents when the pot is moved about its axis.

2. A furnace for melting stereo and other

metals or materials, comprising an outer casing, comprising upper and lower separate parts, the upper part including a hinged lid or door and formed to provide a gas discharge flue, the lower part having a discharge channel, and a pot supported in the outer casing on a horizontal axis for oscillation, and blades in the pot for mixing the material during the oscillation of the pot.

3. A furnace including an outer casing, a pot mounted for oscillation within the casing on a horizontal axis, and stirring blades secured to the wall of the pot and arranged radially of the axis thereof.

4. A furnace, including an outer casing, a pot mounted for oscillation therein, and a pouring spout arranged in the pot with its inner end near the center of the bottom of the pot and inclined upwardly therefrom with its outer end projecting through the wall of the pot below the upper edge thereof.

5. A furnace, including an outer casing, a pot mounted for oscillation therein, and a pouring spout arranged in the pot, the space between the casing and pot being formed to provide a channel opening through the bottom of the casing and adapted to receive the material from the spout.

6. A furnace, including an outer casing, a pot mounted for oscillation therein, and a pouring spout arranged in the pot, the space between the casing and pot being formed to provide a channel opening through the bottom of the casing and adapted to receive the material from the spout, and a guard plate at the lower end of the channel.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HERBERT W. V. WILSON.

Witnesses:

D. KEARNEY,
FDE GALE SPRAGUE.