LOw FREQUENCY INDUCTION FURNACE

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The invention relates to low-frequency induction furnaces, and more particularly to induction furnaces of this type having a vertical melting channel.

In low-frequency induction furnaces with vertical melting channel, particularly in such furnaces used for melting or refining light metals, the melting channel frequently becomes choked by deposits, for example oxides. Up to date for cleaning the choked melting channel a chain or a strong wire has been inserted into one of the branches of the channel and forced down in it until the end of the chain or wire appeared at the end of the other channel branch whereupon the deposits were removed by continuously scrubbing the walls of the channel with the chain or wire. This method of cleaning the channel was very circumstantial and took much time so that the working of the furnace had to be interrupted for a considerable time.

The object of the invention is to provide a furnace of the type above referred to which can be cleaned in a simple and efficient manner in short time.

According to the invention, in the furnace wall surrounding the melting channel, particularly at the deepest point of the channel, one or more closable openings leading to the melting channel are provided for cleaning the channel: by them the cleaning of the channel is considerably facilitated and simplified.

In the accompanying drawing one embodiment of the invention is illustrated diagrammatically by way of example.

Figs. 1 and 2 show the furnace in two perpendicular vertical sections in the working position; Fig. 3 shows the furnace in tilted position ready for cleaning;

Figs. 4 and 5 show a front view and end view of the means for closing the cleaning opening in the furnace wall, and

Figs. 6 and 7 show the cleaning device.

The furnace shown in Figs. 1 and 2 in two perpendicular sections consists of the lining 1 forming the hearth 2 provided with a pouring spout 3 and closed by the cover 4, and heating means composed of an iron core 5 surrounded by a coil 8, and of the melting channel 6 surrounded by the wall 7 and the bottom portion 8. The furnace can be tilted about the axis 10 and rests in a frame 11 consisting of a number of iron beams.

An opening 12 leading to the deepest point of the melting channel 6 is provided in the bottom portion 8. This opening is closed by an asbestos plate 13 inserted into a recess 16 in the wall of the opening, a layer 14 of fire-clay adjoining the asbestos plate and fixed to the wall of the opening by mortar, and by a refractory closing stone or plug 15 fixed to a beam 16 (see Figs. 4 and 5) screwed to the frame 11.

For cleaning the melting channel the furnace is first tilted into the position shown in Fig. 3, then the opening 12 is cleared by removing the closing stone or plug 15 and destroying the layer of fire-clay 14 and the asbestos plate 13. Thereupon a scraping iron 17 of the type shown in Fig. 5 is inserted into both branches of the melting channel, one after the other. By means of the scraper the deposits are loosened and removed from the channel. Then a new asbestos plate 13 and a new layer 14 of fire-clay is put in, the opening is closed by the closing stone or plug 15 and the furnace is tilted back into its working position whereupon it is again ready for working.

Owing to the good accessibility of both branches of the melting channel through the opening 12 this cleaning process takes only a few minutes so that the working of the furnace is hardly interrupted by the cleaning process.

What we claim is:

1. In a tiltable low frequency induction furnace, a frame for supporting said furnace, means for tilting the furnace, side and bottom walls forming a branched vertical melting channel and having a cleaning opening in said bottom wall arranged to allow cleaning of each branch of said melting channel by means of rigid scraping tools, and a plug fitting into said opening for closing said opening.

2. In a furnace according to claim 1, an asbestos plate closing said opening between said plug and said melting channel.

3. In a tiltable low frequency induction furnace, a frame for supporting said furnace, means for tilting the furnace, side and bottom walls forming a vertical melting channel and having a cleaning opening in said bottom wall, a plug fitting into said opening for closing said opening, an asbestos plate closing said opening between said plug and said melting channel, and a layer of refractory material placed between said asbestos plate and said plug.

4. In a furnace according to claim 3, said layer of refractory material comprising a layer of fire-clay between said asbestos plate and said plug, and mortar securing said layer to the wall of the opening.

5. In a furnace according to claim 3, a recess in the wall of said opening, said asbestos plate engaging said recess.

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