Title (en)

Furnace for the removal of impurities from metal melts

Title (de)

Ofen zur Entfernung von Verunreinigungen aus Metallschmelzen

Title (fr)

Four pour l'élimination d'impuretés sur du métal en fusion

Publication

EP 2698588 B1 20171213 (DE)

Application

EP 13180422 A 20130814

Priority

DE 202012103082 U 20120815

Abstract (en)

[origin: EP2698588A2] The furnace comprises a heatable furnace vessel (1) comprising an inner space (3) with a U-shaped cross-section. The furnace vessel: is pivoted from a vertical starting position (90[deg] -position), by an axis of rotation, to a horizontal position (0[deg] -position) and then is pivoted back to the starting position; comprises an inlet opening at one narrow side and an outlet opening at other narrow side; and is connected with two semi-circular blades that are supported on bearing rollers arranged on front and rear sides of a mounting frame (13). The furnace comprises a heatable furnace vessel (1) comprising an inner space (3) with a U-shaped cross-section. The furnace vessel: is pivoted from a vertical starting position (90[deg] -position), by an axis of rotation, to a horizontal position (0[deg] -position) and then is pivoted back to the starting position; comprises an inlet opening at one narrow side and an outlet opening at other narrow side; and is connected with two semi-circular blades that are supported on bearing rollers arranged on front and rear sides of a mounting frame (13). The outlet opening is arranged at a height of the rotational axis. The furnace inner space is divided into respective sections by weirs arranged in the starting position. The weir comprises a passage opening for melt at its bottom portion, and extends outside in its height over the rotational axis of the furnace vessel. A gutter-shaped channel, which is configured for the flow of the metal melts in the horizontal position of the furnace vessel, is arranged in an interior of the furnace along one of the longitudinal sides in a refractory lining. A unit for supplying purge gas is arranged in the bottom portion of the furnace vessel. The furnace is: continuously operable in 90[deg] -position and in 0[deg] -position; and effectively operable in 90[deg] -position in a batch process. A porous plug or a flushing lance is arranged in each of the furnace sections. The rotation axis of the furnace vessel is arranged at a distance of one meter to the lowest-lying point of the furnace inner space. An amount of purge gas supply, over the porous plugs or a water jet assistance, is adjustable by a cascade control. A reactive gas or an inert gas is used as the purge gas. Each of the front and rear bearing rollers (11) is arranged in different distances from a mounting plane such that, during the operation, the interior of the furnace is completely emptied at 0[deg] -position of the furnace vessel and a top filling level lies below a filling opening at 90[deg] -position. Hydraulic cylinders are disposed on the mounting frame for carrying out the pivoting movement of the furnace vessel, where extended and retracted piston rods of the mounting frame are connected to the furnace vessel. The gutter-shaped channel is arranged in side walls of the furnace vessel, and an emergency tap aperture is provided in the gutter-shaped channel. A unit for heating and degassing the furnace is provided in a lid (9) of the furnace vessel.

IPC 8 full level

F27B 14/08 (2006.01)

CPC (source: EP)

C22B 9/05 (2013.01); **F27B 14/02** (2013.01); **F27B 14/04** (2013.01); **F27B 14/08** (2013.01); **F27D 7/02** (2013.01)

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