Title (en)

METHOD AND DEVICE FOR PRODUCING STEEL STRIPS BY MEANS OF BELT CASTING

Title (de)

VERFAHREN UND VORRICHTUNG ZUM ERZEUGEN VON STAHLBÄNDERN MITTELS BANDGIESSEN

Title (fr)

PROCÉDÉ ET DISPOSITIF DE FABRICATION DE BANDES D'ACIER PAR COULÉE EN BANDE

Publication

EP 2445663 A2 20120502 (DE)

Application

EP 10726416 A 20100507

Priority

- DE 2010000551 W 20100507
- DE 102009031236 A 20090626

Abstract (en)

[origin: DE102009031236B3] The method comprises placing a metal melt (7) from a feed vessel to a rotating casting strip (3) of a horizontal strip casting system by a casting groove and a siphon-like outlet area formed as casting nozzle under protective gas, where several plasma beams (5) inerting and heating an active region sectorally impact onto the outlet-side area of the casting nozzle and the metal melt emerging from the casting nozzle during casting process. The power and temperature of the generated plasma beam are sectorally controllable. An inert gas or gas mixture with inert gas is used to generate plasma. The method comprises placing a metal melt (7) from a feed vessel to a rotating casting strip (3) of a horizontal strip casting system by a casting groove and a siphon-like outlet area formed as casting nozzle under protective gas, where several plasma beams (5) inerting and heating an active region sectorally impact onto the outlet-side area of the casting nozzle and the metal melt emerging from the casting nozzle during the casting process. The power and temperature of the generated plasma beam are sectorally controllable. An inert gas or gas mixture with inert gas is used to generate plasma, where the inert gas is argon or nitrogen and the inert gas with the additives of hydrogen, carbon monoxide, carbon dioxide or methane is used as gas mixture. The temperature of the emerging metal melt is targetedly influenced by impacting the plasma beam and the developed temperature drop is balanced from the feed vessel to the outlet area of the casting nozzle. The surface tension and the viscosity of the metal melt emerging from the casting nozzle are targetedly influenced. The plasma beam already impacts onto the outlet area of the casting nozzle before starting the casting process. An independent claim is included for a device for producing steel strips by strip casting.

IPC 8 full level

B22D 11/06 (2006.01); **C21D 8/02** (2006.01)

CPC (source: EP KR US)

B22D 11/06 (2013.01 - KR); **B22D 11/0631** (2013.01 - EP US); **B22D 11/0697** (2013.01 - EP US); C21D 8/0215 (2013.01 - EP US)

Citation (search report)

See references of WO 2010149125A2

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK SM TR

DOCDB simple family (publication)

DE 102009031236 B3 20101202; AU 2010265242 A1 20120202; BR PI1016152 A2 20160419; BR PI1016152 A8 20160503; BR PI1016152 B1 20180424; CN 102497945 A 20120613; CN 102497945 B 20141210; EP 2445663 A2 20120502; EP 2445663 B1 20160810; ES 2602466 T3 20170221; JP 2012530607 A 20121206; JP 5490888 B2 20140514; KR 101391633 B1 20140521; KR 20120016312 A 20120223; PL 2445663 T3 20170331; RU 2484920 C1 20130620; UA 112836 C2 20161110; US 2012125557 A1 20120524; US 8695685 B2 20140415; WO 2010149125 A2 20101229; WO 2010149125 A3 20110324; ZA 201109005 B 20120725

DOCDB simple family (application)

DE 102009031236 A 20090626; AU 2010265242 A 20100507; BR PI1016152 A 20100507; CN 201080029547 A 20100507; DE 2010000551 W 20100507; EP 10726416 A 20100507; ES 10726416 T 20100507; JP 2012516506 A 20100507; KR 20127000515 A 20100507; PL 10726416 T 20100507; RU 2012102670 A 20100507; UA A201200744 A 20100507; US 201013380944 A 20100507; ZA 201109005 A 20111208