

Title (en)

Method and system of treating a carbon steel strip, especially for pickling

Title (de)

Verfahren und System zur Behandlung eines Kohlenstoffstahlbandes, insbesondere zur Abbeizungsbehandlung

Title (fr)

Procédé et système de traitement d'une bande d'acier au carbone, notamment pour un traitement de décapage

Publication

**EP 3029163 B1 20190522 (EN)**

Application

**EP 14195949 A 20141202**

Priority

EP 14195949 A 20141202

Abstract (en)

[origin: EP3029163A1] The present invention relates to method for treating a steel strip by means of a treatment liquid in a treatment station, the treatment station comprising at least a spray section, an immersion section, and a common collection means for the treatment liquid, wherein the steel strip comprises carbon steel and is a continuous steel strip being oriented substantially horizontally, both in its longitudinal and transverse directions, wherein the steel strip has a top surface and a bottom surface, wherein the method comprises transporting the steel strip continuously through the treatment station in a transport direction, the transport direction being parallel to the longitudinal direction of the steel strip, such that -- in a first step, the treatment liquid is sprayed onto the top surface of the steel strip and onto the bottom surface of the steel strip while the steel strip being in the spray section of the treatment station, -- in a second step, the steel strip is immersed in the treatment liquid while the steel strip being in the immersion section of the treatment station, wherein, while treating the steel strip, the treatment liquid is continuously pumped out of the common collection means and through both the spray section and the immersion section of the treatment station, wherein spraying of the treatment liquid onto the top and bottom surfaces of the steel strip is provided using spray nozzles.

IPC 8 full level

**C21D 8/02** (2006.01); **C23G 1/08** (2006.01)

CPC (source: CN EP KR RU US)

**C21D 8/02** (2013.01 - RU); **C21D 8/0278** (2013.01 - KR); **C23G 1/08** (2013.01 - CN EP KR RU US); **C23G 3/02** (2013.01 - RU); **C23G 3/024** (2013.01 - CN EP KR US)

Citation (opposition)

Opponent : Primetals Technologies Austria GmbH

- JP H06128774 A 19940510 - NIPPON STEEL CORP
- WO 02081776 A1 20021017 - AK PROPERTIES INC [US]
- US 5759307 A 19980602 - BERGER HEINZ DIPL ING [DE], et al
- US 5840173 A 19981124 - WALDMANN RALF [DE]
- DE 4031234 A1 19920409 - GEWERK KERAMCHEMIE [DE]
- DE 4228808 A1 19940303 - GEWERK KERAMCHEMIE [DE]
- US 6612318 B1 20030902 - SYLVAIN DANIEL [FR], et al
- DE 10043184 C2 20030515 - ANDRITZ AG MASCHF [AT]
- JP 2004091856 A 20040325 - SUMITOMO METAL IND
- EP 0808919 B1 20010808 - ARMCO INC [US]
- US 5296042 A 19940322 - CURRAN MICHAEL S [US], et al
- JP S551809 B2 19800117
- US 5179967 A 19930119 - MATTIUSSI ALBERT S [CA]
- JP 2009001876 A 20090108 - DAIDO STEEL CO LTD
- DR. RAFAEL RITUPER, BEIZEN VON METALLEN, 1993, pages 1 - 522

Cited by

CN115261877A

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 RS SE SI SK SM TR

DOCDB simple family (publication)

**EP 3029163 A1 20160608; EP 3029163 B1 20190522; EP 3029163 B9 20191127**; BR 112017011358 A2 20180403; CA 2969369 A1 20160609; CN 107002254 A 20170801; EP 3227466 A1 20171011; ES 2742827 T3 20200217; JP 2018502985 A 20180201; KR 20170088433 A 20170801; MX 2017007112 A 20170818; RU 2017123254 A 20190109; RU 2017123254 A3 20190409; RU 2691688 C2 20190617; US 2017268113 A1 20170921; WO 2016087493 A1 20160609

DOCDB simple family (application)

**EP 14195949 A 20141202**; BR 112017011358 A 20151202; CA 2969369 A 20151202; CN 201580065566 A 20151202; EP 15804431 A 20151202; EP 2015078311 W 20151202; ES 14195949 T 20141202; JP 2017528780 A 20151202; KR 20177018058 A 20151202; MX 2017007112 A 20151202; RU 2017123254 A 20151202; US 201515532121 A 20151202