

Title (en)

DEVICE FOR PRODUCING HARDENED STEEL COMPONENTS AND HARDENING METHOD

Title (de)

VORRICHTUNG ZUM HERSTELLEN VON GEHÄRTETEN STAHLBAUTEILEN UND VERFAHREN ZUM HÄRTESTEN

Title (fr)

SYSTÈME DE FABRICATION DE PIÈCES EN ACIER TREMPÉES ET PROCÉDÉ DE TREMPE

Publication

EP 3411163 B1 20191120 (DE)

Application

EP 17703410 A 20170203

Priority

- DE 102016101975 A 20160204
- EP 2017052445 W 20170203

Abstract (en)

[origin: WO2017134259A1] The invention relates to a device for heating sheet steel plates, in particular for shaping and hardening in a press-hardening method, wherein a heating device is provided and the heating device comprises at least one heating module, wherein the at least one heating module is a cassette-type, box-type element having a plate- or cuboid-shaped hollow space, which has a flat plate on an underside, wherein at least one heating element is arranged in the hollow space, which is designed as an electrical resistance heating element, wherein the hollow space is completely filled with a good heat-conducting material, preferably copper, such that the at least one heating element is embedded and surrounded. The invention also relates to a method for this purpose.

IPC 8 full level

B21D 22/02 (2006.01); **B21D 22/20** (2006.01); **B21D 37/16** (2006.01); **B21J 9/08** (2006.01); **C21D 1/34** (2006.01); **C21D 1/673** (2006.01); **C21D 9/00** (2006.01); **H05B 6/00** (2006.01)

CPC (source: EP US)

B21D 22/022 (2013.01 - EP US); **B21D 37/16** (2013.01 - EP US); **C21D 1/18** (2013.01 - EP US); **C21D 1/34** (2013.01 - EP US); **C21D 1/40** (2013.01 - EP US); **C21D 9/0068** (2013.01 - EP US); **C21D 9/46** (2013.01 - EP US); **B21D 22/208** (2013.01 - EP US); **C21D 1/673** (2013.01 - EP US); **C21D 2211/001** (2013.01 - EP US); **C21D 2211/008** (2013.01 - EP US); **H05B 3/68** (2013.01 - US)

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)

WO 2017134259 A1 20170810; CN 109070172 A 20181221; CN 109070172 B 20200317; DE 102016101975 A1 20170824;
DE 102016101975 B4 20171019; EP 3411163 A1 20181212; EP 3411163 B1 20191120; US 2019039109 A1 20190207

DOCDB simple family (application)

EP 2017052445 W 20170203; CN 201780009233 A 20170203; DE 102016101975 A 20160204; EP 17703410 A 20170203;
US 201716073980 A 20170203