



(12) **CORRECTED EUROPEAN PATENT SPECIFICATION**

(15) Correction information:  
**Corrected version no 1 (W1 B1)**  
**Corrections, see**  
**Bibliography INID code(s) 73**

(48) Corrigendum issued on:  
**23.01.2019 Bulletin 2019/04**

(45) Date of publication and mention  
of the grant of the patent:  
**17.10.2018 Bulletin 2018/42**

(21) Application number: **15777734.3**

(22) Date of filing: **07.08.2015**

(51) Int Cl.:  
**C23C 2/02** (2006.01) **C21D 8/02** (2006.01)  
**C23C 2/06** (2006.01) **C23C 2/12** (2006.01)  
**C23C 2/40** (2006.01) **C21D 9/46** (2006.01)  
**C21D 1/26** (2006.01) **C21D 1/34** (2006.01)  
**C22C 38/02** (2006.01) **C22C 38/04** (2006.01)  
**C22C 38/18** (2006.01) **B32B 15/01** (2006.01)  
**C25D 3/22** (2006.01) **C25D 3/56** (2006.01)  
**C21D 1/18** (2006.01) **C21D 1/19** (2006.01)  
**C22C 38/06** (2006.01) **C22C 38/38** (2006.01)  
**C23F 17/00** (2006.01) **C22C 38/34** (2006.01)

(86) International application number:  
**PCT/IB2015/056029**

(87) International publication number:  
**WO 2016/020899 (11.02.2016 Gazette 2016/06)**

(54) **METHOD FOR PRODUCING A STEEL SHEET HAVING IMPROVED STRENGTH, DUCTILITY AND FORMABILITY**

VERFAHREN ZUR HERSTELLUNG EINES STAHLBLECHS MIT VERBESSERTER FESTIGKEIT, DEHNBARKEIT UND VERFORMBARKEIT

PROCÉDÉ DE FABRICATION D'UNE TÔLE D'ACIER AYANT UNE RÉSISTANCE, UNE DUCTILITÉ ET UNE APTITUDE AU FORMAGE AMÉLIORÉES

(84) Designated Contracting States:  
**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**  
Designated Validation States:  
**MA**

(30) Priority: **07.08.2014 PCT/IB2014/001492**

(43) Date of publication of application:  
**14.06.2017 Bulletin 2017/24**

(73) Proprietor: **ArcelorMittal**  
**1160 Luxembourg (LU)**

(72) Inventors:  
• **MASSE, Jean-Philippe**  
**38000 Grenoble (FR)**  
• **HELL, Jean-Christophe**  
**57283 Maizieres-les-metz Cedex (FR)**

(74) Representative: **Lavoix**  
**2, place d'Estienne d'Orves**  
**75441 Paris Cedex 09 (FR)**

(56) References cited:  
**EP-A1- 2 762 589 WO-A1-2012/120020**  
**CN-A- 102 534 132 US-A1- 2014 170 439**

- **JOHN G. SPEER ET AL.: "The "Quenching and Partitioning" Process: Background and Recent Progress.", MATERIALS RESEARCH, vol. 8, no. 4, 1 April 2008 (2008-04-01), pages 417-423, XP002737458,**
- **SPEER J G ET AL: "Analysis of microstructure evolution in quenching and partitioning automotive sheet steel", METALLURGICAL AND MATERIALS TRANSACTIONS A: PHYSICAL METALLURGY AND MATERIALS SCIENCE DECEMBER 2011 SPRINGER BOSTON USA, vol. 42, no. 12, December 2011 (2011-12), pages 3591-3601, XP002737459, DOI: 10.1007/S11661-011-0869-7**

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

- DE KNIJF DORIEN ET AL: "Effect of fresh martensite on the stability of retained austenite in quenching and partitioning steel", MATERIALS SCIENCE AND ENGINEERING A: STRUCTURAL MATERIALS: PROPERTIES, MICROSTRUCTURES AND PROCESSING, ELSEVIER BV, NL, vol. 615, 28 July 2014 (2014-07-28), pages 107-115, XP029056881, ISSN: 0921-5093, DOI: 10.1016/J.MSEA.2014.07.054