

Title (en)

RAIL AND METHOD FOR MANUFACTURING SAME

Title (de)

SCHIENE UND VERFAHREN ZUR HERSTELLUNG DAVON

Title (fr)

RAIL ET PROCÉDÉ POUR LE FABRIQUER

Publication

**EP 3124636 A4 20170201 (EN)**

Application

**EP 15768893 A 20150324**

Priority

- JP 2014060786 A 20140324
- JP 2015001659 W 20150324

Abstract (en)

[origin: EP3124636A1] Provided is a rail that exhibits excellent wear resistance and reduced hardness variation in a rail length direction. The rail has a chemical composition containing 0.60% to 1.0% of C, 0.1% to 1.5% of Si, 0.01% to 1.5% of Mn, 0.035% or less of P, 0.030% or less of S, and 0.1% to 2.0% of Cr, the balance being Fe and incidental impurities. Surface hardness of the rail exhibits variation of  $\pm$ HB 15 points or less in the rail length direction.

IPC 8 full level

**C22C 38/00** (2006.01); **C21D 8/00** (2006.01); **C21D 9/04** (2006.01); **C22C 38/02** (2006.01); **C22C 38/04** (2006.01); **C22C 38/06** (2006.01); **C22C 38/18** (2006.01); **C22C 38/24** (2006.01); **C22C 38/26** (2006.01); **C22C 38/28** (2006.01); **C22C 38/34** (2006.01); **C22C 38/38** (2006.01); **C22C 38/42** (2006.01); **C22C 38/46** (2006.01); **C22C 38/48** (2006.01); **C22C 38/50** (2006.01)

CPC (source: EP US)

**C21D 6/002** (2013.01 - EP US); **C21D 6/005** (2013.01 - EP US); **C21D 6/008** (2013.01 - EP US); **C21D 8/005** (2013.01 - EP US); **C21D 9/04** (2013.01 - EP US); **C22C 38/00** (2013.01 - EP US); **C22C 38/001** (2013.01 - EP US); **C22C 38/002** (2013.01 - EP US); **C22C 38/02** (2013.01 - EP US); **C22C 38/04** (2013.01 - EP US); **C22C 38/06** (2013.01 - EP US); **C22C 38/18** (2013.01 - EP US); **C22C 38/22** (2013.01 - EP US); **C22C 38/24** (2013.01 - EP US); **C22C 38/26** (2013.01 - EP US); **C22C 38/28** (2013.01 - EP US); **C22C 38/34** (2013.01 - EP US); **C22C 38/38** (2013.01 - EP US); **C22C 38/42** (2013.01 - EP US); **C22C 38/46** (2013.01 - EP US); **C22C 38/48** (2013.01 - EP US); **C22C 38/50** (2013.01 - EP US)

Citation (search report)

- [YDA] US 2010116381 A1 20100513 - HONJO MINORU [JP], et al
- [YA] JP 2773867 B2 19980709
- [YA] JP 2010077481 A 20100408 - JFE STEEL CORP
- [YA] JP H01104721 A 19890421 - NIPPON STEEL CORP
- [XAI] JP 2001234238 A 20010828 - NIPPON STEEL CORP
- [IA] US 2004187981 A1 20040930 - UEDA MASA HARU [JP], et al
- [A] US 2009314049 A1 20091224 - UEDA MASA HARU [JP], et al
- [A] US 2011303756 A1 20111215 - UEDA MASA HARU [JP], et al
- [A] US 2011253268 A1 20111020 - ZOU MING [CN], et al
- [A] US 2011155821 A1 20110630 - UEDA MASA HARU [JP], et al
- See references of WO 2015146150A1

Cited by

SE543919C2; CN111405949A; EP3778966A4; AU2019242158B2; US11530471B2; WO2022106864A1; EP3124636B1

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

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

**EP 3124636 A1 20170201**; **EP 3124636 A4 20170201**; **EP 3124636 B1 20190306**; **EP 3124636 B2 20230517**; AU 2015237464 A1 20160811; AU 2015237464 B2 20180201; BR 112016022007 B1 20210511; CA 2936780 A1 20151001; CA 2936780 C 20181002; CN 106103772 A 20161109; CN 106103772 B 20180522; JP 6150008 B2 20170621; JP WO2015146150 A1 20170413; US 2017101692 A1 20170413; WO 2015146150 A1 20151001

DOCDB simple family (application)

**EP 15768893 A 20150324**; AU 2015237464 A 20150324; BR 112016022007 A 20150324; CA 2936780 A 20150324; CN 201580013144 A 20150324; JP 2015001659 W 20150324; JP 2016510035 A 20150324; US 201515128267 A 20150324