

Title (en)

RAIL AND METHOD FOR MANUFACTURING SAME

Title (de)

SCHIENE UND VERFAHREN ZUR HERSTELLUNG DAVON

Title (fr)

RAIL ET SON PROCÉDÉ DE FABRICATION

Publication

EP 4023777 A4 20230301 (EN)

Application

EP 20874591 A 20200727

Priority

- JP 2019187316 A 20191011
- JP 2020028616 W 20200727

Abstract (en)

[origin: EP4023777A1] A rail 1 includes a foot 2, a web 3, and a head 4. The web 3 has a chemical composition containing C: 0.70 to 1.20 mass%, Si: 0.20 to 1.20 mass%, Mn: 0.20 to 1.50 mass%, P: 0.035 mass% or less, and Cr: 0.20 to 2.50 mass%, with the balance being Fe and incidental impurities. The area fraction of pearlite in the web 3 is 95% or more, and the average size of pearlite blocks is 60 µm or less.

IPC 8 full level

C21D 8/00 (2006.01); **B21B 1/085** (2006.01); **C21D 1/02** (2006.01); **C21D 9/04** (2006.01); **C22C 38/00** (2006.01); **C22C 38/02** (2006.01); **C22C 38/04** (2006.01); **C22C 38/18** (2006.01); **C22C 38/20** (2006.01); **C22C 38/22** (2006.01); **C22C 38/24** (2006.01); **C22C 38/26** (2006.01); **C22C 38/32** (2006.01); **C22C 38/40** (2006.01); **C22C 38/54** (2006.01)

CPC (source: CN EP US)

B21B 1/085 (2013.01 - US); **C21D 1/02** (2013.01 - EP); **C21D 1/84** (2013.01 - US); **C21D 7/13** (2013.01 - US); **C21D 9/04** (2013.01 - CN EP US); **C22C 38/002** (2013.01 - US); **C22C 38/02** (2013.01 - CN EP US); **C22C 38/04** (2013.01 - CN EP US); **C22C 38/18** (2013.01 - CN); **C22C 38/20** (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 38/32** (2013.01 - EP US); **C22C 38/38** (2013.01 - US); **C22C 38/40** (2013.01 - EP US); **E01B 5/02** (2013.01 - CN); **C21D 2211/009** (2013.01 - CN EP US)

Citation (search report)

- [X1] JP 2003293086 A 20031015 - NIPPON STEEL CORP
- [X1] US 2015152516 A1 20150604 - KIMURA TATSUMI [JP], et al
- [I] EP 0685566 A1 19951206 - NIPPON STEEL CORP [JP]
- [I] CN 109023058 A 20181218 - PANZHIHUA IRON & STEEL RES INST PANGANG GROUP
- See also references of WO 2021070452A1

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 4023777 A1 20220706; **EP 4023777 A4 20230301**; AU 2020364505 A1 20220428; AU 2020364505 B2 20230803; CA 3157401 A1 20210415; CA 3157401 C 20240409; CN 114502761 A 20220513; CN 114502761 B 20240109; JP 7063400 B2 20220509; JP WO2021070452 A1 20211021; US 2023250505 A1 20230810; WO 2021070452 A1 20210415

DOCDB simple family (application)

EP 20874591 A 20200727; AU 2020364505 A 20200727; CA 3157401 A 20200727; CN 202080070379 A 20200727; JP 2020028616 W 20200727; JP 2020558653 A 20200727; US 202017766390 A 20200727