

Title (en)

AGE-HARDENING STEEL AND METHOD OF MANUFACTURING PARTS USING AGE-HARDENING STEEL

Title (de)

ALTERSHÄRTENDER STAHL UND VERFAHREN ZUR HERSTELLUNG VON TEILEN MIT ALTERSHÄRTENDEM STAHL

Title (fr)

ACIER DURCI PAR VIEILLISSEMENT ET PROCÉDÉ DE FABRICATION DE PIÈCES À L'AIDE D'ACIER DURCI PAR VIEILLISSEMENT

Publication

**EP 3279356 A4 20181003 (EN)**

Application

**EP 16772353 A 20160317**

Priority

- JP 2015070839 A 20150331
- JP 2016058585 W 20160317

Abstract (en)

[origin: EP3279356A1] Age hardening steel excellent in machinability before aging treatment and excellent in fatigue characteristics, toughness, and low cycle fatigue characteristics after aging treatment, that is, age hardening steel containing predetermined amounts of C, Si, Mn, S, Cr, Al, V, Nb, Ca, and REM, limiting contents of P, Ti, and N to predetermined amounts or less, having a balance of Fe and impurities, having an area ratio of bainite structures of 70% or more, and, furthermore, having a chemical composition where F1 expressed by  $C+0.3 \times Mn+0.25 \times Cr$  is 0.68 or more, F2 expressed by  $C+0.1 \times Si+0.2 \times Mn+0.15 \times Cr+0.35 \times V$  is 0.85 or less, F3 expressed by  $-4.5 \times C+Mn+Cr-3.5 \times V$  is 0.00 or more, and F4 expressed by  $10 \times Ca+REM$  is 0.012 to 0.08, is provided. Note that, the symbols of elements in the formulas showing F1 to F4 mean the contents by mass% of those elements.

IPC 8 full level

**C22C 38/00** (2006.01); **C21D 6/00** (2006.01); **C21D 6/02** (2006.01); **C21D 8/06** (2006.01); **C21D 9/00** (2006.01); **C21D 9/52** (2006.01); **C22C 38/02** (2006.01); **C22C 38/06** (2006.01); **C22C 38/42** (2006.01); **C22C 38/44** (2006.01); **C22C 38/46** (2006.01); **C22C 38/48** (2006.01); **C22C 38/58** (2006.01); **C22C 38/60** (2006.01)

CPC (source: EP KR US)

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Citation (search report)

- [A] JP 2013245363 A 20131209 - NIPPON STEEL & SUMITOMO METAL CORP
- [A] JP 2000017374 A 20000118 - AICHI STEEL WORKS LTD
- [A] FR 2990218 A1 20131108 - DAIDO STEEL CO LTD [JP]
- See references of WO 2016158470A1

Cited by

EP3875610A4; US11814709B2

Designated contracting state (EPC)

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