

Title (en)

STEEL FOR CASE HARDENING WHICH HAS EXCELLENT COLD WORKABILITY AND MACHINABILITY AND WHICH EXHIBITS EXCELLENT FATIGUE CHARACTERISTICS AFTER CARBURIZING AND QUENCHING, AND PROCESS FOR PRODUCTION OF SAME

Title (de)

STAHL ZUM EINSATZHÄRTEN MIT HERVORRAGENDER KALTUMFORMBARKEIT UND ZERSPANBARKEIT UND HERVORRAGENDEN ERMÜDUNGSEIGENSCHAFTEN NACH AUFKOHLUNG UND ABSCHRECKUNG UND HERSTELLUNGSVERFAHREN DAFÜR

Title (fr)

ACIER POUR DURCISSEMENT SUPERFICIEL QUI PRÉSENTE UNE EXCELLENTE APTITUDE AU FAÇONNAGE À FROID ET UNE EXCELLENTE APTITUDE À L'USINAGE ET QUI PRÉSENTE D'EXCELLENTE CARACTÉRISTIQUES À LA FATIGUE APRÈS CÉMENTATION AU CARBONE ET TREMPÉ, ET SON PROCÉDÉ DE FABRICATION

Publication

EP 2418296 A4 20170517 (EN)

Application

EP 09843061 A 20091014

Priority

- JP 2009068083 W 20091014
- JP 2009092176 A 20090406

Abstract (en)

[origin: EP2418296A1] Cold worked, machined, and carburized quenched case-hardened steel prevented from formation of coarse grains, that is, case-hardened steel superior in cold workability, machinability, and fatigue characteristics after carburized quenching characterized by limiting, by mass%, S: 0.001 to 0.15%, Ti: 0.05 to 0.2%, Al: 0.04% or less, and N: 0.0050% or less, containing other specific ingredients in specific ranges, furthermore containing one or more of Mg: 0.003% or less, Zr: 0.01% or less, and Ca: 0.005% or less, limiting the amount of precipitation of AlN to 0.01% or less, and having a density d (/mm²) of sulfides with a equivalent circle diameter of over 20 μm and an aspect ratio of over 3 and a content of S [S] (mass%) satisfying d#1700[S]+20.

IPC 8 full level

C22C 38/00 (2006.01); **C21D 1/06** (2006.01); **C21D 8/02** (2006.01); **C21D 8/06** (2006.01); **C22C 1/00** (2006.01); **C22C 38/60** (2006.01); **C23C 8/02** (2006.01); **C23C 8/22** (2006.01); **C23C 8/32** (2006.01)

CPC (source: EP KR US)

C21D 1/06 (2013.01 - EP KR US); **C21D 8/0226** (2013.01 - EP KR US); **C22C 1/02** (2013.01 - EP KR US); **C22C 1/11** (2023.01 - EP KR US); **C22C 38/00** (2013.01 - US); **C22C 38/001** (2013.01 - EP); **C22C 38/002** (2013.01 - EP KR); **C22C 38/02** (2013.01 - EP KR); **C22C 38/04** (2013.01 - EP); **C22C 38/06** (2013.01 - EP); **C22C 38/22** (2013.01 - EP); **C22C 38/24** (2013.01 - EP); **C22C 38/26** (2013.01 - EP); **C22C 38/28** (2013.01 - EP KR); **C22C 38/32** (2013.01 - EP); **C22C 38/38** (2013.01 - EP KR); **C22C 38/46** (2013.01 - EP); **C22C 38/48** (2013.01 - EP); **C23C 8/32** (2013.01 - EP US); **C23C 8/80** (2013.01 - EP US)

Citation (search report)

- [I] JP 2002069573 A 20020308 - NIPPON STEEL CORP
- [IA] JP H11236646 A 19990831 - SUMITOMO METAL IND
- [A] JP 2005220423 A 20050818 - KOBE STEEL LTD
- [A] JP 2007031787 A 20070208 - KOBE STEEL LTD
- See references of WO 2010116555A1

Cited by

JPWO2018021452A1; EP3492615A4

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