

Title (en)

HIGH-STRENGTH STEEL SHEET EXCELLENT IN WORKABILITY AND MANUFACTURING METHOD THEREOF

Title (de)

HOCHFESTES STAHLBLECH MIT HERVORRAGENDER BEARBEITBARKEIT UND HERSTELLUNGSVERFAHREN DAFÜR

Title (fr)

TÔLE D'ACIER À HAUTE RÉSISTANCE PRÉSENTANT UNE EXCELLENTE APTITUDE AU FAÇONNAGE, ET SON PROCÉDÉ DE FABRICATION

Publication

**EP 2695961 B1 20190619 (EN)**

Application

**EP 12765664 A 20120321**

Priority

- JP 2011080953 A 20110331
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- JP 2012057210 W 20120321

Abstract (en)

[origin: EP2695961A1] Provided are: a high-strength steel sheet which is improved in both elongation and local formability and thus exhibits excellent workability; and a manufacturing method thereof. The high-strength steel sheet contains C, Si, Mn, Al, P and S with the remainder including iron and unavoidable impurities, and has a metal structure which includes polygonal ferrite, bainite, tempered martensite, and retained austenite. In the metal structure, (1) the bainite has a composite microstructure including both a high-temperature-formed bainite having an average distance between adjacent regions of retained austenite and/or carbide of 1  $\mu\text{m}$  or more and a low-temperature-formed bainite having an average distance between adjacent regions of retained austenite and/or carbide of less than 1  $\mu\text{m}$  each identified upon observation with a scanning electron microscope; and (2) the retained austenite is present in a volume percentage of 5% or more of the entire metal structure as determined by a saturation magnetization measurement.

IPC 8 full level

**C22C 38/00** (2006.01); **C21D 9/46** (2006.01); **C22C 38/60** (2006.01); **C23C 2/02** (2006.01); **C23C 2/06** (2006.01); **C23C 2/28** (2006.01); **C23C 2/40** (2006.01)

CPC (source: EP KR US)

**C21D 6/004** (2013.01 - EP US); **C21D 6/005** (2013.01 - EP US); **C21D 6/008** (2013.01 - EP US); **C21D 8/0205** (2013.01 - EP US); **C21D 8/0247** (2013.01 - EP US); **C21D 8/0447** (2013.01 - KR); **C21D 9/46** (2013.01 - EP US); **C22C 38/001** (2013.01 - EP KR US); **C22C 38/002** (2013.01 - EP KR US); **C22C 38/005** (2013.01 - EP KR US); **C22C 38/02** (2013.01 - EP KR US); **C22C 38/04** (2013.01 - EP KR US); **C22C 38/06** (2013.01 - EP KR US); **C22C 38/08** (2013.01 - EP US); **C22C 38/12** (2013.01 - EP US); **C22C 38/14** (2013.01 - EP US); **C22C 38/16** (2013.01 - EP KR US); **C22C 38/22** (2013.01 - EP US); **C22C 38/28** (2013.01 - EP US); **C22C 38/34** (2013.01 - EP KR US); **C22C 38/38** (2013.01 - EP KR US); **C22C 38/42** (2013.01 - EP KR US); **C22C 38/50** (2013.01 - EP KR US); **C22C 38/58** (2013.01 - EP KR US); **C23C 2/0224** (2022.08 - EP KR US); **C23C 2/024** (2022.08 - KR); **C23C 2/06** (2013.01 - KR US); **C23C 2/28** (2013.01 - EP US); **C23C 2/40** (2013.01 - US); **C21D 2211/001** (2013.01 - EP KR US); **C21D 2211/002** (2013.01 - EP KR US); **C21D 2211/005** (2013.01 - EP KR US); **C21D 2211/008** (2013.01 - EP KR US); **Y10T 428/12799** (2015.01 - EP US)

Cited by

EP3050988A4; EP3263733A4; US10066274B2; US10941476B2; US10876181B2

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