

Title (en)

METHOD FOR MAKING A STRIP OR A WORKPIECE CUT OUT FROM A COLD ROLLED MARAGING STEEL STRIP

Title (de)

VERFAHREN ZUR HERSTELLUNG EINES BANDS ODER EINES AUS EINEM KALTGEWALZTEN BAND AUS MARTENSITAUSHÄRTENDEM STAHL AUSGESCHNITTENEN WERKSTÜCKS

Title (fr)

PROCEDE POUR FABRIQUER UNE BANDE OU UNE PIECE DECOUPEE DANS UNE BANDE EN ACIER MARAGING LAMINEE A FROID

Publication

**EP 1339880 A1 20030903 (FR)**

Application

**EP 01996631 A 20011116**

Priority

- FR 0103595 W 20011116
- FR 0014807 A 20001117

Abstract (en)

[origin: WO0240722A1] The invention concerns a method for making a strip or a workpiece cut out from a cold rolled maraging steel strip and hardened by a hardening heat treatment, which consists, prior to the heat treatment, in subjecting the strip or the workpiece to cold plastic deformation with a rate of strain hardening more than 30 % and in subjecting the strip or the workpiece to a recrystallization annealing so as to obtain a fine grain of ASTM index more than 8. The maraging steel composition comprises, by weight: 12 %  $\leq$  Ni  $\leq$  24.5 %; 2.5 %  $\leq$  Mo  $\leq$  12 %; 4.17 %  $\leq$  Co  $\leq$  20 %; Al  $\leq$  0.15 %; Ti  $\leq$  0.1 %; N  $\leq$  0.003 %; Si  $\leq$  0.1 %; Mn  $\leq$  0.1 %; C  $\leq$  0.005 %; S  $\leq$  0.001 %; P  $\leq$  0.005 %; H  $\leq$  0.0003 %; O  $\leq$  0.001 %; the rest being iron and impurities resulting from preparation of the composition, the composition further satisfying the following relationships: 20 %  $\leq$  Ni + Mo  $\leq$  27 %; 50  $\leq$  Co x Mo  $\leq$  200; Ti x N  $\leq$  2 x 10<sup>-4</sup>. The invention also concerns the resulting strip.

IPC 1-7

**C21D 8/02; C22C 38/10**

IPC 8 full level

**B21B 3/02** (2006.01); **C21D 6/02** (2006.01); **C21D 8/02** (2006.01); **C21D 9/46** (2006.01); **C22C 38/00** (2006.01); **C22C 38/10** (2006.01); **C22C 38/12** (2006.01); **C22C 38/14** (2006.01)

CPC (source: EP KR US)

**C21D 6/02** (2013.01 - EP US); **C21D 8/02** (2013.01 - KR); **C21D 8/0205** (2013.01 - EP US); **C22C 38/004** (2013.01 - EP US); **C22C 38/105** (2013.01 - EP US); **C22C 38/12** (2013.01 - EP US); **C21D 8/0236** (2013.01 - EP US); **C21D 8/0273** (2013.01 - EP US); **C21D 2201/00** (2013.01 - EP US)

Citation (search report)

See references of WO 0240722A1

Cited by

WO2017064684A1; WO2017064537A1; WO2016170397A1; CN114807776A; CN108138286A; CN116024505A; WO2016170519A1; US10731231B2

Designated contracting state (EPC)

AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR

DOCDB simple family (publication)

**WO 0240722 A1 20020523**; AR 034276 A1 20040218; AT E366826 T1 20070815; AU 1838202 A 20020527; CN 1298869 C 20070207; CN 1630732 A 20050622; CY 1106925 T1 20120926; DE 60129350 D1 20070823; DE 60129350 T2 20080313; DK 1339880 T3 20070910; EP 1339880 A1 20030903; EP 1339880 B1 20070711; ES 2287187 T3 20071216; FR 2816959 A1 20020524; FR 2816959 B1 20030801; JP 2004514056 A 20040513; JP 2008274436 A 20081113; JP 4278378 B2 20090610; JP 4965502 B2 20120704; KR 100884639 B1 20090223; KR 20030055303 A 20030702; KR 20080048544 A 20080602; PT 1339880 E 20070813; TW 539746 B 20030701; US 2002059967 A1 20020523; US 6663730 B2 20031216

DOCDB simple family (application)

**FR 0103595 W 20011116**; AR P010105379 A 20011116; AT 01996631 T 20011116; AU 1838202 A 20011116; CN 01818826 A 20011116; CY 071101302 T 20070910; DE 60129350 T 20011116; DK 01996631 T 20011116; EP 01996631 A 20011116; ES 01996631 T 20011116; FR 0014807 A 20001117; JP 2002543031 A 20011116; JP 2008115217 A 20080425; KR 20037006549 A 20030514; KR 20087009332 A 20080418; PT 01996631 T 20011116; TW 90128454 A 20011116; US 98813401 A 20011119