

Title (en)

METHOD OF MAKING STEEL USEFUL IN SPRINGS

Publication

**EP 0462779 A3 19930901 (EN)**

Application

**EP 91305456 A 19910617**

Priority

- JP 2507691 A 19910128
- JP 2507791 A 19910128
- JP 15879090 A 19900619

Abstract (en)

[origin: EP0462779A2] Steel material containing by weight from 0.4 % to 0.8 % carbon, from 0.5 % to 2.5 % silicon, from 0.3 % to 2.0 % manganese, from 0.1 % to 1.5 % chromium, and from 0.1 % to 0.5 % molybdenum is hot-rolled to form a strip or plate. The hot-rolled plate or strip is annealed and cold-rolled at a rolling reduction between 10 % and 80 %. The cold-rolled strip or plate is heated at a temperature above Ac3 critical point for a time sufficient to austenitize carbide and annealed. Steel springs with attractive properties for use in motor vehicle clutches can be produced from this steel material.

IPC 1-7

**C21D 8/02**; **C21D 9/02**

IPC 8 full level

**C21D 6/02** (2006.01); **C21D 8/02** (2006.01); **C21D 9/02** (2006.01)

CPC (source: EP KR)

**C21D 6/02** (2013.01 - EP); **C21D 8/0273** (2013.01 - EP); **C21D 9/02** (2013.01 - EP); **C22C 38/02** (2013.01 - KR); **C22C 38/04** (2013.01 - EP); **C22C 38/22** (2013.01 - EP); **C22C 38/24** (2013.01 - EP); **C22C 38/26** (2013.01 - EP); **C22C 38/34** (2013.01 - EP); **C21D 8/0226** (2013.01 - EP); **C21D 8/0236** (2013.01 - EP); **C21D 8/0263** (2013.01 - EP)

Citation (search report)

- [A] FR 1290235 A 19620413 - CT TECH DE L IND HORLOGERE
- [A] US 4770721 A 19880913 - YAMAMOTO TOSHIRO [JP], et al
- [XP] PATENT ABSTRACTS OF JAPAN vol. 14, no. 559 (C-787)12 December 1990 & JP-A-02 240 240 ( AISIN SEIKI ) 25 September 1990

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Designated contracting state (EPC)

DE FR GB

DOCDB simple family (publication)

**EP 0462779 A2 19911227**; **EP 0462779 A3 19930901**; **EP 0462779 B1 19960911**; AU 633737 B2 19930204; AU 7837391 A 19920109; CA 2044639 A1 19911220; CA 2044639 C 20010828; DE 69121982 D1 19961017; DE 69121982 T2 19970130; KR 920000959 A 19920129; KR 930012177 B1 19931224

DOCDB simple family (application)

**EP 91305456 A 19910617**; AU 7837391 A 19910613; CA 2044639 A 19910614; DE 69121982 T 19910617; KR 910010243 A 19910619