Title (en)

HIGH-STRENGTH FLAT STEEL WIRE EXHIBITING SUPERIOR HYDROGEN-INDUCED CRACK RESISTANCE

Title (de)

HOCHFESTER FLACHSTAHLDRAHT MIT HERVORRAGENDER BESTÄNDIGKEIT GEGENÜBER WASSERSTOFFINDUZIERTEN SPANNUNGSRISSEN

Title (fr)

FIL D'ACIER PLAT HAUTE RÉSISTANCE PRÉSENTANT UNE RÉSISTANCE SUPÉRIEURE À LA FISSURATION INDUITE PAR L'HYDROGÈNE

Publication

**EP 3415654 A1 20181219 (EN)**

Application

**EP 17763270 A 20170307**

Priority

- JP 2016043961 A 20160307
- JP 2017009081 W 20170307

Abstract (en)

A high-strength flat steel wire contains, by mass%: C: 0.25 to 0.60%; Si: greater than 0.50% and less than 2.0%; Mn: 0.20 to 1.50%; S: 0.015% or less; P: 0.015% or less; Cr: 0.005 to 1.50%; Al: 0.005 to 0.080%; N: 0.0020 to 0.0080%; and one or two of Ca: 0 to 0.0050% and Mg: 0 to 0.0050% to satisfy [Ca] + [Mg] > 0.20 × [S], with the balance composed of Fe and impurities, the high-strength flat steel wire has tensile strength of 1000 MPa or more, an average value of Hv hardness measured in a cross section perpendicular to a longitudinal direction of 320 or more and less than 450, a standard deviation ÃHv of the measured value of 15 or less, and a width/thickness ratio of not less than 1.5 nor more than 10. [Ca], [Mg], and [S] represent contents of respective elements by mass%.

IPC 8 full level

**C22C 38/00** (2006.01); **C22C 38/34** (2006.01); **C22C 38/54** (2006.01)

CPC (source: EP KR US)

**C21D 6/002** (2013.01 - EP US); **C21D 6/005** (2013.01 - EP US); **C21D 6/008** (2013.01 - EP US); **C21D 8/065** (2013.01 - EP US); **C21D 9/525** (2013.01 - EP US); **C22C 38/001** (2013.01 - EP KR US); **C22C 38/002** (2013.01 - EP 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 38/20** (2013.01 - EP US); **C22C 38/22** (2013.01 - EP US); **C22C 38/24** (2013.01 - EP US); **C22C 38/26** (2013.01 - EP US); **C22C 38/28** (2013.01 - EP US); **C22C 38/32** (2013.01 - EP US); **C22C 38/34** (2013.01 - EP KR US); **C22C 38/42** (2013.01 - EP US)

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

**EP 3415654 A1 20181219**; **EP 3415654 A4 20190814**; BR 112018015250 A2 20181218; CN 108699655 A 20181023; JP 6528895 B2 20190612; JP WO2017154930 A1 20181101; KR 102101635 B1 20200417; KR 20180111913 A 20181011; SG 11201806071S A 20180830; US 2019048445 A1 20190214; WO 2017154930 A1 20170914

DOCDB simple family (application)

**EP 17763270 A 20170307**; BR 112018015250 A 20170307; CN 201780014640 A 20170307; JP 2017009081 W 20170307; JP 2018504528 A 20170307; KR 20187025414 A 20170307; SG 11201806071S A 20170307; US 201716078214 A 20170307