

Title (en)  
METHOD FOR THE MANUFACTURE OF OBJECTS FROM IRON-COBALT-MOLYBDENUM/TUNGSTEN-NITROGEN ALLOYS

Title (de)  
VERFAHREN ZUR HERSTELLUNG VON GEGENSTÄNDEN AUS EISEN-COBALT-MOLYBDÄN/WOLFRAM-STICKSTOFF-LEGIERUNGEN

Title (fr)  
PROCÉDÉ DE FABRICATION D'OBJETS EN ALLIAGES DE FER- COBALT - MOLYBDÈNE/TUNGSTÈNE - AZOTE INERTE

Publication  
**EP 2886673 A3 20150805 (DE)**

Application  
**EP 14192704 A 20141111**

Priority  
AT 508202013 A 20131212

Abstract (en)  
[origin: CA2873761A1] The disclosure relates to a production of a semi-finished product for a manufacturing of objects, particularly tools, from a precipitation-hardenable alloy having a composition in wt.% of Co = 15.0 to 30.0, Mo up to 20.0, W up to 25.0, Fe and manufacturing-specific impurities as a remainder. To achieve an economical, highly precise production of objects or tools of the above alloy with reduced effort, it is provided to prevent a formation of ordered structures of the Fe atoms and Co atoms in the matrix of the type (Fe+(29xCo)) + approximately 1 wt.% Mo of the semi-finished product by a thermal special treatment, to thus improve a workability of the material.

IPC 8 full level  
**C22C 33/02** (2006.01); **B22F 3/15** (2006.01); **B22F 3/24** (2006.01); **C21D 6/00** (2006.01); **C21D 6/02** (2006.01)

CPC (source: AT EP KR US)  
**B22F 3/16** (2013.01 - AT); **B22F 3/24** (2013.01 - AT US); **C21D 1/26** (2013.01 - EP KR US); **C21D 6/007** (2013.01 - EP KR US); **C21D 6/02** (2013.01 - KR); **C22C 33/0285** (2013.01 - EP KR US); **C22C 38/001** (2013.01 - EP KR US); **C22C 38/10** (2013.01 - AT EP KR US); **C22C 38/12** (2013.01 - KR); **C22C 38/22** (2013.01 - EP US); **B22F 2003/248** (2013.01 - US); **B22F 2998/10** (2013.01 - EP KR US); **C21D 6/02** (2013.01 - EP US)

Citation (search report)

- [A] EP 1990438 A1 20081112 - BOEHLER EDELSTAHL GMBH & CO KG [AT]
- [A] H. DANNINGER, F. ROUZBAHANI, CH. HAROLD, H. PONEMAYR, M. DAXELMÜLLER, F. SIMANÍK, K. IDINSKÝ: "POWDER METALLURGY CARBON FREE TOOL STEELS Fe-Co-Mo WITH VARYING Co AND Mo CONTENTS", POWDER METALLURGY PROGRESS, vol. 13, no. 2, July 2013 (2013-07-01), pages 47 - 56, XP002741147
- [A] DANNINGER H ET AL: "Heat treatment and properties of precipitation hardened carbon-free PM tool steels", PROGRESS IN POWDER METALLURGY, METAL POWDER INDUSTRIES FEDERATION, PRINCETON, US, vol. 5, no. 2, January 2005 (2005-01-01), pages 92 - 103, XP009104271, ISSN: 0079-6719
- [A] H. DANNINGER, CH. HAROLD, CH. GIERL, H. PONEMAYR, M. DAXELMUELLER, F. SIMANCIK AND K. IZDINSKY: "Powder Metallurgy Manufacturing of Carbon-Free Precipitation Hardened High Speed Steels", ACTA PHYSICA POLONICA A, vol. 117, no. 5, 2010, pages 825 - 830, XP002741148

Designated contracting state (EPC)  
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BA ME

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**EP 2886673 A2 20150624; EP 2886673 A3 20150805; EP 2886673 B1 20190612**; AT 515148 A1 20150615; AT 515148 B1 20161115; CA 2873761 A1 20150612; CA 2873761 C 20190319; CN 104708005 A 20150617; CN 104708005 B 20171003; ES 2745380 T3 20200302; HK 1206681 A1 20160115; JP 2015113528 A 20150622; JP 6071984 B2 20170201; KR 101700680 B1 20170131; KR 20150068912 A 20150622; RU 2014150364 A 20160710; RU 2599926 C2 20161020; SI 2886673 T1 20200731; TW 201522662 A 20150616; TW I537399 B 20160611; UA 113548 C2 20170210; US 10066279 B2 20180904; US 2015167132 A1 20150618

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