

Title (en)

Method for producing homogeneous fine grain titanium alloys suitable for ultrasonic inspection

Title (de)

Verfahren zur Herstellung von Titan-Legierungen mit feiner Kornstruktur zur verbesserten Ultraschall-Prüfbarkeit

Title (fr)

Procédé de préparation d'alliages de titane ayant une structure granulaire fine pour améliorer l'abilité d'inspection par ultrasons

Publication

EP 1433863 A1 20040630 (EN)

Application

EP 03258060 A 20031219

Priority

RU 2002135197 A 20021226

Abstract (en)

A titanium material production method for producing homogeneous fine grain titanium material in which the titanium material has a grain size in a range from about 5 μ m to about 20 μ m. The method comprises providing a titanium material blank; conducting a first heat treatment on the titanium material blank to heat the titanium material blank to a beta -range; quenching the titanium material blank from the beta -region to the alpha + beta -region; forging the titanium material blank; and conducting a second heat treatment on the titanium material blank. The titanium material production method subjects the titanium material blank to superplasticity conditions during part of the titanium material production method.

IPC 1-7

C22C 1/04; **C22F 1/18**

IPC 8 full level

C22C 1/04 (2006.01); **C22F 1/18** (2006.01)

CPC (source: EP)

C22F 1/183 (2013.01)

Citation (search report)

- [X] US 6387197 B1 20020514 - BEWLAY BERNARD PATRICK [US], et al
- [A] US 5277718 A 19940111 - PAXSON ALLEN J [US], et al
- [A] EP 1136582 A1 20010926 - GEN ELECTRIC [US]
- [A] US 5026520 A 19910625 - BHOWAL PRABIR R [US], et al
- [X] PATENT ABSTRACTS OF JAPAN vol. 1996, no. 06 28 June 1996 (1996-06-28)

Cited by

CN109518108A; KR101374233B1; CN109622838A; CN107604281A; CN108034911A; KR100733285B1; EP3006583A4; CN109371267A; CN110129699A; CN114769478A; US10604823B2; US10502252B2; US11111552B2; US10513755B2; US10337093B2; US10144999B2; US10370751B2; US10287655B2; US10570469B2; US10619226B2; US10808298B2; US11319616B2

Designated contracting state (EPC)

DE FR GB

DOCDB simple family (publication)

EP 1433863 A1 20040630; **EP 1433863 B1 20070627**; DE 60314589 D1 20070809; DE 60314589 T2 20080306; RU 2321674 C2 20080410

DOCDB simple family (application)

EP 03258060 A 20031219; DE 60314589 T 20031219; RU 2002135197 A 20021226