

Title (en)

Process for forming a superficial layer having a high hardness by plasma-free thermochemical treatment

Title (de)

Verfahren zur Herstellung einer Oberflächenschicht von grosser Härte durch thermochemische plasmafreie Behandlung

Title (fr)

Procédé pour la formation, par traitement thermochimique sans plasma, d'une couche superficielle présentant une dureté élevée

Publication

EP 0885980 A3 20001011 (FR)

Application

EP 98401235 A 19980522

Priority

FR 9706518 A 19970523

Abstract (en)

[origin: EP0885980A2] A hard surface layer is formed on a piece of alloy which is reactive with nitrogen, oxygen or carbon, such as titanium or zirconium, by heating the piece to over 650 degrees C in an enclosure where the pressure is no more than 0.1 mbar, then injecting a suitable reactive gas but still maintaining a pressure below atmospheric for a period between a few tens of minutes and 24 hours or more, depending on the layer thickness required.

IPC 1-7

C23C 8/24; **C23C 8/20**; **C23C 8/06**

IPC 8 full level

C23C 8/06 (2006.01); **C23C 8/20** (2006.01); **C23C 8/24** (2006.01)

CPC (source: EP)

C23C 8/06 (2013.01); **C23C 8/20** (2013.01); **C23C 8/24** (2013.01)

Citation (search report)

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- [A] EP 0449793 A1 19911002 - YTBOLAGET I UPPSALA AB [SE]
- [A] FR 2136037 A5 19721222 - METAUX PRECIEUX SA
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- [A] F. PREISSER: "hochdrucknitrieren von titanwerkstoffen", HTM HARTEREI-TECHNISCHE MITTEILUNGEN, vol. 46, no. 6, November 1991 (1991-11-01) - December 1991 (1991-12-01), MUNICH,DE, pages 361 - 366, XP000237447
- [A] PATENT ABSTRACTS OF JAPAN vol. 095, no. 007 31 August 1995 (1995-08-31)
- [A] DATABASE WPI Section Ch Week 8714, Derwent World Patents Index; Class M13, AN 87-097023, XP002054660
- [A] PATENT ABSTRACTS OF JAPAN vol. 012, no. 426 (C - 542) 10 November 1988 (1988-11-10)

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Designated contracting state (EPC)

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DOCDB simple family (publication)

FR 2763604 A1 19981127; **FR 2763604 B1 19990702**; DE 69831530 D1 20051020; DE 69831530 T2 20060614; EP 0885980 A2 19981223; EP 0885980 A3 20001011; EP 0885980 B1 20050914; ES 2247665 T3 20060301

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