

Title (en)  
TURBINE COMPONENTS HAVING INCREASED LIFE CYCLE AND METHOD.

Title (de)  
TURBINENTEILCHEN MIT VERBESSERTEM LEBENSZYKLUS UND VERFAHREN.

Title (fr)  
COMPOSANTS DE TURBINE DE DUREE PROLONGEE ET PROCEDE.

Publication  
**EP 0152471 A4 19860318 (EN)**

Application  
**EP 84903235 A 19840815**

Priority  
• US 52365983 A 19830815  
• US 58717284 A 19840307

Abstract (en)  
[origin: WO8500837A1] Method and apparatus whereby turbine components are increased in erosion resistance, and turbine apparatus increased in cycle life thereby, by forming an intermetallic compound of the base metal, iron, cobalt or nickel, and boron, and a polyboride-forming element such as chromium or a refractory element: tungsten, tantalum, molybdenum or niobium at the fluid directing surfaces (16, 18) of the component (10), and enriching the surface relatively in chromium where the base alloy is an iron-chromium alloy such as a stainless steel.

IPC 1-7  
**C23C 11/04**

IPC 8 full level  
**C23C 12/00** (2006.01); **C23C 12/02** (2006.01); **F01D 5/28** (2006.01)

CPC (source: EP)  
**C23C 12/00** (2013.01); **C23C 12/02** (2013.01); **F01D 5/288** (2013.01)

Citation (search report)  
• [XD] US 3029162 A 19620410 - LIONEL SAMUEL ROBERT, et al  
• [A] US 3824134 A 19740716 - CHANCE M  
• [A] DE 1268931 B 19680522 - PHILIPS NV  
• [A] EP 0077703 A1 19830427 - NICOLAS GUY  
• [A] FR 2075946 A1 19711015 - SURFACE TECH CORP [US], et al  
• [X] CHEMICAL ABSTRACTS, vol. 83, 1975, page 327, abstract no. 119285a, Columbus, Ohio, US; Z. ZAKHARIEV et al.: "Preparation of multicomponent boron-containing diffusion layers on iron and steel", & IZV. OTD. KHIM. NAUKI, BULG. AKAD. NAUK. 1974, 7(4), 719-26  
• [X] CHEMICAL ABSTRACTS, vol. 91, no. 4, July 1979, page 295, abstract no. 25346j, Columbus, Ohio, US; A. BRADVAROV et al.: "Study of the metal resistance of complex boride coatings", & MATERIALOZN. TEKHNOL. 1977, 4, 65-80  
• [A] CHEMICAL ABSTRACTS, vol. 87, 1977, page 211, abstract no. 155629g, Columbus, Ohio, US; & JP - A - 77 76 235 (SEIKOSHA CO., LTD.) 27-06-1977  
• [A] HÄRTEREI - TECHNISCHE MITTEILUNGEN, vol. 36, no. 5, September/October 1981, pages 248-254, Munich, DE; R. CHATTERJEE-FISCHER: "Das Mehrkomponentenborieren - eine Technologie zum Erzeugen von Boridschichten mit besonderen Eigenschaften"  
• See references of WO 8500837A1

Designated contracting state (EPC)  
AT CH DE FR GB LI NL SE

DOCDB simple family (publication)  
**WO 8500837 A1 19850228**; AU 3391184 A 19850312; EP 0152471 A1 19850828; EP 0152471 A4 19860318

DOCDB simple family (application)  
**US 8401289 W 19840815**; AU 3391184 A 19840815; EP 84903235 A 19840815