

Title (en)  
Method of manufacturing a blade with high hardness nitride layer

Title (de)  
Verfahren zur Herstellung einer Klinge mit harter Nitridschicht

Title (fr)  
Procédé de réalisation d'une lame ayant une couche dure de niture

Publication  
**EP 2090672 A1 20090819 (EN)**

Application  
**EP 08166287 A 20081009**

Priority  
KR 20080011880 A 20080205

Abstract (en)  
A blade made of a carbon steel or alloy steel is subjected to a surface nitriding process to form a high hardness nitride layer having a thickness in the range of 10 µm to 100 µm and a Vickers hardness Hv of 1000 or more, and a silver oxide layer, a copper oxide layer, or a silver oxide and copper oxide layer is formed on the high hardness nitride layer of the blade by firing. Through this processing, the blade that has a high cutting maintaining ability and an excellent sanitization ability such as antibiosis, sterilization ability, and antimold ability is provided.

IPC 8 full level  
**B26B 9/00** (2006.01); **B26B 21/60** (2006.01); **C21D 9/18** (2006.01); **C23C 8/02** (2006.01); **C23C 8/26** (2006.01); **C23C 18/16** (2006.01); **C23C 22/05** (2006.01); **C23C 28/02** (2006.01)

CPC (source: EP KR US)  
**B26B 9/00** (2013.01 - EP US); **B26B 21/60** (2013.01 - EP US); **C21D 9/18** (2013.01 - EP US); **C23C 8/00** (2013.01 - KR); **C23C 8/02** (2013.01 - EP US); **C23C 8/26** (2013.01 - EP US); **C23C 8/80** (2013.01 - EP US); **C23C 18/04** (2013.01 - EP US); **C23C 18/1216** (2013.01 - EP US); **C23C 18/1241** (2013.01 - EP US); **C23C 18/1245** (2013.01 - EP US); **C23C 18/165** (2013.01 - EP US); **C23C 18/32** (2013.01 - EP US); **C23C 22/74** (2013.01 - EP US); **C23C 28/322** (2013.01 - EP US); **C23C 28/34** (2013.01 - EP US); **C23C 28/345** (2013.01 - EP US); **C23C 28/36** (2013.01 - EP US)

Citation (applicant)  
• JP 2004137600 A 20040513 - NANO GIJUTSU KENKYUSHO KK  
• JP 2007051368 A 20070301 - NAT INST FOR MATERIALS SCIENCE

Citation (search report)  
• [XA] WO 0006960 A1 20000210 - NU BIT INC [US]  
• [X] US 2087051 A 19370713 - STARGARDTER ALBERT R  
• [X] JP H09302417 A 19971125 - DAIDO STEEL CO LTD  
• [X] JP S6449594 A 19890227 - KAI CUTLERY CENTER CO  
• [A] EP 1092535 A1 20010418 - THINK LABS KK [JP]  
• [A] EP 0523298 A1 19930120 - DAIDO OXYGEN [JP]  
• [A] WO 2004015159 A2 20040219 - KONINKL PHILIPS ELECTRONICS NV [NL], et al  
• [A] HAMAISHI K ET AL: "Effect of mechanical pre-treatment on gas nitriding behavior in austenitic stainless steels", NIPPON KINZOKU GAKKAISHI - JOURNAL OF THE JAPAN INSTITUTE OF METALS, NIPPON KINZOKU GAKKAI, TOKYO, JP, vol. 59, no. 2, 1 February 1995 (1995-02-01), pages 133 - 139, XP009109107, ISSN: 0021-4876

Cited by  
EP3527693A1; EP3187621A1; US10470463B2

Designated contracting state (EPC)  
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT RO SE SI SK TR

Designated extension state (EPC)  
AL BA MK RS

DOCDB simple family (publication)  
**EP 2090672 A1 20090819**; KR 20090085943 A 20090810; US 2009194203 A1 20090806

DOCDB simple family (application)  
**EP 08166287 A 20081009**; KR 20080011880 A 20080205; US 23930908 A 20080926