Title (en)

ELECTROLYTIC PROCESS FOR COATING METAL SURFACES TO PROVIDE HIGH WEAR RESISTANCE

Title (de)

ELEKTROLYTISCHES VERFAHREN ZUR BESCHICHTUNG VON METALLISCHEN OBERFLÄCHEN ZUR BEREITSTELLUNG HOHER VERSCHLEISSFESTIGKEIT

Title (fr)

PROCÉDÉ ÉLECTROLYTIQUE POUR LE REVÊTEMENT DE SURFACES MÉTALLIQUES POUR FOURNIR UNE RÉSISTANCE ÉLEVÉE À L'USURE

Publication

EP 3098334 A1 20161130 (EN)

Application

EP 16171777 A 20160527

Priority

IT UB20151322 A 20150529

Abstract (en)

Process for coating a metal article, which comprises: providing an electrolytic bath comprising a suspension of boron carbide particles, having an average size from 0.01 µm to 2 µm, in an aqueous solution comprising: at least one nickel (II) salt; at least one phosphorous compound selected from: phosphoric acid, phosphorous acid, hypophosphorous acid or salts thereof; at least one surfactant; immersing in the electrolytic bath a cathode comprising the article to be coated and an anode, and carrying out an electrodeposition by passing direct current in the electrolytic bath; subjecting the thus coated metal article to a heat treatment. In such a way a coating layer comprising a phosphorus/nickel alloy matrix and boron carbide particles having an average size from 0.01 µm to 2 µm is obtained. The coating layer thus obtained has very high wear resistance, also at high temperatures, and high hardness (up to 1500 HV), and at the same time high thickness uniformity.

IPC 8 full level

B01F 5/00 (2006.01); **B01F 5/10** (2006.01); **C25D 3/12** (2006.01); **C25D 5/08** (2006.01); **C25D 5/14** (2006.01); **C25D 5/50** (2006.01); **C25D 15/00** (2006.01); **C25D 21/10** (2006.01)

CPC (source: EP US)

B01F 23/023 (2022.01 - EP); **B01F 25/10** (2022.01 - EP); **B01F 25/50** (2022.01 - EP); **C25D 3/12** (2013.01 - EP); **C25D 5/08** (2013.01 - EP US); **C25D 5/14** (2013.01 - EP US); **C25D 5/50** (2013.01 - EP); **C25D 5/617** (2020.08 - EP US); **C25D 5/619** (2020.08 - EP US); **C25D 15/00** (2013.01 - EP US); **C25D 21/10** (2013.01 - EP)

Citation (applicant)

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