

Title (en)

Method of pretreating metallic works and method of nitriding steel.

Title (de)

Verfahren zur Vorbehandlung von metallischen Werkstücken und zur Nitrierhärtung von Stahl.

Title (fr)

Procédé pour le prétraitement préalable de matériaux métalliques et procédé pour la nitruration d'acier.

Publication

EP 0408168 B1 19940608 (EN)

Application

EP 90302232 A 19900301

Priority

- JP 17766089 A 19890710
- JP 33342489 A 19891222

Abstract (en)

[origin: EP0408168A1] A method of pretreating metallic works comprises heating a metallic work in a furnace and introducing a fluorine- or fluoride-containing gas into the furnace in that state to thereby cause destruction and elimination of the foreign matters adhering to the metallic work surface and of the oxidized layer occurring on the metallic work surface and simultaneous formation of a fluorinated layer. Just prior to the main thermal treatment, for example nitriding, the fluorinated layer is decomposed and eliminated by introducing an appropriate gas, for example H₂, into the furnace. In this way, the metallic work reveals its cleaned and activated surface. A steel nitriding method comprises heating a steel work placed in a furnace to a temperature of about 300-500°C, feeding a fluorine- or fluoride-containing gas into the furnace at that temperature, and then subjecting the steel works to nitriding treatment to thereby remove impurities and at the same time activate a steel work surface, make N atoms penetrate rapidly to the thus-activated steel work surface and diffuse into the inside. As a result, a uniform nitrided layer can be formed.

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IPC 8 full level

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CPC (source: EP)

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Cited by

EP0545069A1; EP0532806A1; EP0877175A3; US5254181A; CN110425824A; US5792282A; EP0516899A1; US5252145A; EP3162910A1; US6093303A; EP0551702A1; EP0569637A1; US5403409A; EP0496153A1; US5208073A; EP0678589A1; US5593510A; EP0618304A1; US6165597A; EP0544987A1; US5372655A; EP0488497A3; EP0802339A3; US5833373A; US5556483A; EP2497842A1; US9822456B2; US6461448B1; WO2004029320A1; WO2007061483A1; EP0479409B1; KR100247657B1; US6547888B1; WO2013084034A1; US10081858B2

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