

Title (en)

HIGH-ALLOY METALS REINFORCED BY DIAMOND-LIKE FRAMEWORK AND METHOD OF MAKING THE SAME

Title (de)

DURCH DIAMANTARTIGES GERÜST VERSTÄRKTE HOCHLEGIERTE METALLE

Title (fr)

METEAUX FORTEMENT ALLIES RENFORCES PAR UNE OSSATURE DE TYPE DIAMANT ET LEUR PROCEDE DE FABRICATION

Publication

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Application

**EP 04821485 A 20040923**

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Abstract (en)

[origin: WO2005081685A2] A new class of high-alloy metals is invented. The metals possess an amorphous, nano crystalline, or combined amorphous-nano-crystalline structure and are reinforced, stabilized and hardened with a framework formed by predominantly sp<sup>3</sup>bonded carbon, also known-as diamond like carbon. Optionally, other alloying nonmetallic elements selected from the group of Si, B, O, N may additionally stabilize the structure. The disclosed high-alloy metals comprise a metallic matrix which may include iron, nickel, chromium, refractory, and various other metals. These materials are very stable, and do not suffer a structural degradation up to relatively high temperatures. The disclosed high-alloy metals have the properties of high hardness, corrosion and wear resistance, and low friction. They have a wide range of applications as protective coatings on a wide variety of materials in various industries. They may be further applied as magnetic and electronic devices, such as field emission cathodes. Some of these alloys possess high emissivity, and their electrical conductivity may be varied in a relatively wide range.

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