

Title (en)

DRIVE CAM AND VALVE OPERATING DEVICE FOR ENGINE

Title (de)

STEUERNOCKEN UND VENTILTRIEBVORRICHTUNG FÜR EINEN MOTOR

Title (fr)

CAME DE COMMANDE À COEUR ET DISPOSITIF D'ACTIONNEMENT DE SOUPAPE POUR MOTEUR

Publication

EP 2653671 A4 20160406 (EN)

Application

EP 11849077 A 20111206

Priority

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Abstract (en)

[origin: EP2653671A1] Provided are a drive cam having an improved wear resistant sliding surface that gives the drive cam enhanced durability and a valve operating system in an engine with such a drive cam. The drive cam 13a of the present invention, made of a nitriding steel, has on its sliding surface, a hardened surface formed by nitrocarburizing wherein the hardened layer lies on top of the sliding surface. It is preferred that the driven mechanism 33 used in combination with the drive cam 13a has, in its sliding surface against which the drive cam slides, a chrome-plated layer and thereon a diamond-like carbon coating.

IPC 8 full level

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CPC (source: EP US)

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Citation (search report)

- [IA] DE 4205647 A1 19930826 - SCHAEFFLER WÄLZLAGER KG [DE]
- [IA] EP 2053144 A1 20090429 - NIHON PARKERIZING [JP]
- [IA] JP S63167004 A 19880711 - MUSASHI SEIMITSU KOGYO KK, et al
- [IA] US 4796575 A 19890110 - MATSUBARA TOSHIHIKO [JP], et al
- [IA] US 2002162523 A1 20021107 - ISHIHARA MOTOKATA [JP]
- [IA] EP 1634978 A1 20060315 - INA SCHAEFFLER KG [DE]
- [IA] EP 2246533 A1 20101103 - HONDA MOTOR CO LTD [JP], et al
- [IA] US 2009283063 A1 20091119 - WAKADE SHEKHAR G [US], et al
- [IA] US 2009276992 A1 20091112 - MAEDA KIKUO [JP], et al
- See references of WO 2012081198A1

Cited by

WO2017007397A1

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