

Title (en)  
DRIVE CAM AND VALVE OPERATING SYSTEM IN 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 B1 20170322 (EN)**

Application  
**EP 11849077 A 20111206**

Priority  
• JP 2010277141 A 20101213  
• JP 2011006823 W 20111206

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  
**F01L 1/04** (2006.01); **C23C 8/00** (2006.01); **C23C 8/32** (2006.01); **F01L 1/14** (2006.01); **F01L 1/16** (2006.01); **F01L 13/00** (2006.01)

CPC (source: EP US)  
**C23C 8/32** (2013.01 - EP US); **F01L 1/04** (2013.01 - EP US); **F01L 1/14** (2013.01 - EP US); **F01L 1/143** (2013.01 - EP US);  
**F01L 13/0063** (2013.01 - EP US); **F01L 1/16** (2013.01 - EP US); **F01L 2301/00** (2020.05 - EP US); **F01L 2303/00** (2020.05 - EP US)

Cited by  
WO2017007397A1

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

DOCDB simple family (publication)  
**EP 2653671 A1 20131023**; **EP 2653671 A4 20160406**; **EP 2653671 B1 20170322**; CN 103189604 A 20130703; JP 5898092 B2 20160406;  
JP WO2012081198 A1 20140522; US 2013291813 A1 20131107; WO 2012081198 A1 20120621

DOCDB simple family (application)  
**EP 11849077 A 20111206**; CN 201180054786 A 20111206; JP 2011006823 W 20111206; JP 2012548633 A 20111206;  
US 201113993650 A 20111206