

Title (en)  
Internal Combustion Engine

Title (de)  
Verbrennungsmotor

Title (fr)  
Moteur à combustion interne

Publication  
**EP 1826389 A1 20070829 (EN)**

Application  
**EP 07101110 A 20070124**

Priority  
• JP 2006052761 A 20060228  
• JP 2006287091 A 20061023

Abstract (en)  
To provide structure for avoiding the concentration of stress caused in the bolt hole in a circumference of the end of the bolt in a fastened part and to lighten the crankcase (2) in an internal combustion engine (1) provided with a fastening bolt for fastening upper and lower crankcases (2B) in a circumference of a crankshaft (11) and a bolt hole which is formed in the crankcase (2) and into which the fastening bolt is inserted and tightened. An opening is formed at an upper end of the bolt hole in the upper crankcase (2A), the end of the bolt hole is made to communicate with the opening, and the end of the fastening bolt is protruded into the opening in fitting the bolt.

IPC 8 full level  
**F02F 7/00** (2006.01)

CPC (source: EP)  
**F02F 7/0053** (2013.01); **F02F 7/0082** (2013.01); **F02F 2007/0041** (2013.01); **F02F 2007/0063** (2013.01)

Citation (search report)  
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• [YA] DE 19756390 A1 19990624 - MAHLE GMBH [DE]  
• [XA] DE 19645691 A1 19980514 - BAYERISCHE MOTOREN WERKE AG [DE]  
• [X] US 5931135 A 19990803 - YAMADA SATOSHI [JP]  
• [A] DE 10102764 A1 20020725 - VOLKSWAGEN AG [DE]

Cited by  
CN101907036A

Designated contracting state (EPC)  
DE ES IT

Designated extension state (EPC)  
AL BA HR MK YU

DOCDB simple family (publication)  
**EP 1826389 A1 20070829; EP 1826389 B1 20100224**; DE 602007004888 D1 20100408; ES 2339884 T3 20100526

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