

Title (en)

Phase changing device between a shaft and its driving pulley

Title (de)

Vorrichtung zur relativen Drehlagenänderung einer Welle zum Antriebsrad

Title (fr)

Dispositif de changement de phase entre un arbre et sa poulie d'entraînement

Publication

EP 0978638 B1 20030917 (DE)

Application

EP 99112226 A 19990625

Priority

DE 19834843 A 19980801

Abstract (en)

[origin: EP0978638A1] An adjustable valve timing for an IC engine has the camshaft drive gear linked to the camshaft by a phase adjustment comprising fixed and movable vanes and by altering the relative hydraulic pressure in the chambers between the fixed and movable vanes. To prevent grit from being dragged under the movable vanes the inside wall of the outer housing is cut with a pattern of grooves (25). The grooves have sufficient depth and are spaced sufficiently close to collect grit. The movable vanes cover at least two grooves at any time.

IPC 1-7

F01L 1/344

IPC 8 full level

F01L 1/047 (2006.01); **F01L 1/344** (2006.01); **F16H 55/36** (2006.01)

CPC (source: EP KR US)

F01L 1/047 (2013.01 - KR); **F01L 1/3442** (2013.01 - EP US); **F01L 2001/34436** (2013.01 - EP US); **F01L 2001/34479** (2013.01 - EP US); **Y10T 74/2102** (2015.01 - EP US)

Cited by

DE102010012652B4; DE102011000822A1; KR100516423B1; DE102011000822B4; DE102010012652A1

Designated contracting state (EPC)

DE ES FR GB IT SE

DOCDB simple family (publication)

DE 19834843 A1 20000203; CN 1089848 C 20020828; CN 1243911 A 20000209; DE 59906996 D1 20031023; EP 0978638 A1 20000209; EP 0978638 B1 20030917; ES 2204034 T3 20040416; JP 2000055171 A 20000222; KR 100516423 B1 20050923; KR 20000016991 A 20000325; US 6129063 A 20001010

DOCDB simple family (application)

DE 19834843 A 19980801; CN 99111850 A 19990730; DE 59906996 T 19990625; EP 99112226 A 19990625; ES 99112226 T 19990625; JP 21548599 A 19990729; KR 19990031516 A 19990731; US 35943399 A 19990722