

Title (en)

Driving system for two oil pumps of an internal combustion engine with reciprocating pistons.

Title (de)

Vorrichtung zum Antrieb zweier Ölpumpen an einer Hubkolben-Brennkraftmaschine.

Title (fr)

Dispositif d'entraînement de deux pompes à huile pour moteur à combustion interne à pistons alternatifs.

Publication

EP 0406527 A1 19910109 (DE)

Application

EP 90106688 A 19900406

Priority

DE 3921715 A 19890701

Abstract (en)

[origin: JPH0343613A] PURPOSE: To make an arrangement compact which engine-drives a main oil pump for lubrication and a second oil pump by driving the respective pumps with an interlocking motion with a crankshaft through a transmission device arranged on the same side as a cam drive. CONSTITUTION: A camshaft drive consisting of an intermediate gear 8 engaging with a crankshaft gear 6 and two chain transmission devices 15, 17 is disposed between a flywheel and an end bearing 5 fixed on the end part of a crankshaft 2 in a multi-cylinder V-type engine. An oil pump 20 having a pump gear 24 covered with a pump cover 25 and interlocking with the gear 7 of the intermediate gear 8 is fitted on the external end surface side of the intermediate gear 8 to supply its delivered oil to a hydraulic camshaft rotating device. A main oil pump 30 driven by the crankshaft 2 through a chain transmission device 31 including a sprocket 33 fixed to the crankshaft 2 near a camshaft drive is provided to supply oil in an oil pan 32 to the lubricating position of the engine.

Abstract (de)

Der Schmierölkreislauf einer Hubkolben-Brennkraftmaschine wird durch eine in der Ölwanne angeordnete, von der Kurbelwelle (2) angetriebene Hauptölpumpe (30) versorgt. Eine zweite, ebenfalls von der Kurbelwelle angetriebene Ölpumpe (20), liefert Hydraulikdruck an hydraulische Nockenwellenverdreavorrichtungen. Die zweite Ölpumpe (20) ist in einem Zwischenrad (7) integriert und von ihm angetrieben, über das die Nockenwellen von der Kurbelwelle angetrieben sind.

IPC 1-7

F01L 1/02; **F02B 67/04**

IPC 8 full level

F02B 67/04 (2006.01); **F01L 1/02** (2006.01); **F01L 1/04** (2006.01); **F01L 1/34** (2006.01); **F01L 1/344** (2006.01); **F01M 1/02** (2006.01); **F02B 67/06** (2006.01); **F02B 75/22** (2006.01); **F16N 7/36** (2006.01); **F02B 75/18** (2006.01)

CPC (source: EP US)

F01L 1/02 (2013.01 - EP US); **F01L 1/022** (2013.01 - EP US); **F01L 1/344** (2013.01 - EP US); **F01M 1/02** (2013.01 - EP US); **F02B 67/06** (2013.01 - EP US); **F02B 75/22** (2013.01 - EP US); **F01L 2001/0537** (2013.01 - EP US); **F02B 2075/1832** (2013.01 - EP US); **F02B 2275/08** (2013.01 - EP US); **F02B 2275/18** (2013.01 - EP US)

Citation (search report)

- [AD] EP 0163046 A1 19851204 - PIERBURG GMBH & CO KG [DE]
- [AD] DE 2620480 A1 19771124 - MTU FRIEDRICHSHAFEN GMBH [DE]
- [A] EP 0272677 A1 19880629 - FIAT AUTO SPA [IT]
- [A] DE 3619577 A1 19871217 - KLOECKNER HUMBOLDT DEUTZ AG [DE]
- [A] US 3159047 A 19641201 - DABLE GEORGE F

Cited by

DE19622688A1; US5386808A; US5509383A; US5190005A; GB2249346B; EP3486524A1; FR3073594A1; DE102008036787A1; EP0503635A1; US5195474A; WO9213177A1; WO9214641A1

Designated contracting state (EPC)

DE ES FR GB IT NL SE

DOCDB simple family (publication)

EP 0406527 A1 19910109; **EP 0406527 B1 19930908**; DE 3921715 A1 19910110; DE 59002620 D1 19931014; ES 2044291 T3 19940101; JP 2888934 B2 19990510; JP H0343613 A 19910225; US 5063895 A 19911112

DOCDB simple family (application)

EP 90106688 A 19900406; DE 3921715 A 19890701; DE 59002620 T 19900406; ES 90106688 T 19900406; JP 16693690 A 19900627; US 59815090 A 19901016