

CPC COOPERATIVE PATENT CLASSIFICATION

F MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING (NOTE omitted)

ENGINES OR PUMPS

F01 MACHINES OR ENGINES IN GENERAL; ENGINE PLANTS IN GENERAL; STEAM ENGINES

F01M LUBRICATING OF MACHINES OR ENGINES IN GENERAL; LUBRICATING INTERNAL COMBUSTION ENGINES; CRANKCASE VENTILATING

NOTE

Attention is drawn to the notes preceding class [F01](#), specially as regards Note (3).

WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

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| 1/00 | Pressure lubrication | | |
| 1/02 | • using lubricating pumps (pumps in general F04 ; lubricating pumps per se F16N) | 2001/105 | • • {characterised by the layout of the purification arrangements} |
| 2001/0207 | • • {characterised by the type of pump} | 2001/1057 | • • • {comprising a plurality of filters, parallel or serial} |
| 2001/0215 | • • • {Electrical pumps} | 2001/1064 | • • • {comprising drains for oil to the carter, e.g. to recover spilled oil during change of filters} |
| 2001/0223 | • • • {Electromagnetic pumps} | 2001/1071 | • • • {comprising oil tanks} |
| 2001/023 | • • • {Piston pumps} | 2001/1078 | • • • {comprising an oil pick-up tube to oil pump, e.g. strainer} |
| 2001/0238 | • • • {Rotary pumps} | 2001/1085 | • • • {comprising non-return valves} |
| 2001/0246 | • • • {Adjustable pumps} | 2001/1092 | • • • {comprising valves bypassing the filter} |
| 2001/0253 | • • {characterised by the pump driving means} | 1/12 | • Closed-circuit lubricating systems not provided for in groups F01M 1/02 - F01M 1/10 |
| 2001/0261 | • • • {driven by the camshaft} | 2001/123 | • • {using two or more pumps} |
| 2001/0269 | • • • {driven by the crankshaft} | 2001/126 | • • {Dry-sumps} |
| 2001/0276 | • • • {driven by a balancer shaft} | 1/14 | • Timed lubrication (F01M 1/08 takes precedence) |
| 2001/0284 | • • {mounting of the pump} | 1/16 | • Controlling lubricant pressure or quantity (rendering machines or engines inoperative or idling on lubricant pressure failure F01M 1/22) |
| 2001/0292 | • • {Sealings} | 2001/165 | • • • {according to fuel dilution in oil} |
| 1/04 | • using pressure in working cylinder or crankcase to operate lubricant feeding devices | 1/18 | • Indicating or safety devices (concerning lubricant level F01M 11/06, F01M 11/12) |
| 1/06 | • Lubricating systems characterised by the provision therein of crankshafts or connecting rods with lubricant passageways, e.g. bores (crankshafts, connecting-rods, per se F16C) | 1/20 | • • concerning lubricant pressure |
| 2001/062 | • • {Crankshaft with passageways} | 1/22 | • • • rendering machines or engines inoperative or idling on pressure failure |
| 2001/064 | • • {Camshaft with passageways} | 1/24 | • • • • acting on engine fuel system |
| 2001/066 | • • {Connecting rod with passageways} | 1/26 | • • • • acting on engine ignition system |
| 2001/068 | • • {Bakance shaft with passageways} | 1/28 | • • • • acting on engine combustion-air supply |
| 1/08 | • Lubricating systems characterised by the provision therein of lubricant jetting means | 3/00 | Lubrication specially adapted for engines with crankcase compression of fuel-air mixture or for other engines in which lubricant is contained in fuel, combustion air, or fuel-air mixture (separating lubricant from air or fuel-air mixture before entry into cylinder F01M 11/08) |
| 2001/083 | • • {for lubricating cylinders} | 3/02 | • with variable proportion of lubricant to fuel, lubricant to air, or lubricant to fuel-air-mixture |
| 2001/086 | • • {for lubricating gudgeon pins} | 3/04 | • for upper cylinder lubrication only |
| 1/10 | • Lubricating systems characterised by the provision therein of lubricant venting or purifying means, e.g. of filters | | |
| 2001/1007 | • • {characterised by the purification means combined with other functions} | | |
| 2001/1014 | • • • {comprising supply of additives} | | |
| 2001/1021 | • • • {comprising self cleaning systems} | | |
| 2001/1028 | • • {characterised by the type of purification} | | |
| 2001/1035 | • • • {comprising centrifugal filters} | | |
| 2001/1042 | • • • {comprising magnetic parts} | | |

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| 5/00 | Heating, cooling, or controlling temperature of lubricant (arrangement of lubricant coolers in engine cooling system F01P 11/08); Lubrication means facilitating engine starting | 2011/0066 | . . {with passages in the wall, e.g. for axles or fluid passages} |
| 5/001 | . {Heating} | 2011/007 | . . {Oil pickup tube to oil pump, e.g. strainer} |
| 5/002 | . {Cooling} | 2011/0075 | . . . {with a plurality of tubes} |
| 2005/004 | . . {Oil-cooled engines} | 2011/0079 | . . {with the oil pump integrated or fixed to sump} |
| 5/005 | . {Controlling temperature of lubricant} | 2011/0083 | . . {Dry sumps} |
| 5/007 | . . {Thermostatic control} | 2011/0087 | . . {Sump being made of different parts} |
| 2005/008 | . {Lubrication means facilitating engine starting} | 2011/0091 | . . {characterised by used materials} |
| 5/02 | . Conditioning lubricant for aiding engine starting, e.g. heating | 2011/0095 | . {Supplementary oil tank} |
| 5/021 | . . {by heating} | 11/02 | . Arrangements of lubricant conduits |
| 2005/023 | . . . {Oil sump with partition for facilitating heating of oil during starting} | 2011/021 | . . {for lubricating auxiliaries, e.g. pumps or turbochargers} |
| 5/025 | . . {by prelubricating, e.g. using an accumulator} | 2011/022 | . . {for lubricating cylinders} |
| 2005/026 | . . . {with an auxiliary pump} | 2011/023 | . . {between oil sump and cylinder head} |
| 2005/028 | . . . {with a reservoir under pressure} | 2011/025 | . . {for lubricating gudgeon pins} |
| 5/04 | . . Diluting, e.g. with fuel | 2011/026 | . . {for lubricating crankshaft bearings} |
| 7/00 | Lubrication means specially adapted for machine or engine running-in | 2011/027 | . . {for lubricating connecting rod bearings} |
| 9/00 | Lubrication means having pertinent characteristics not provided for in, or of interest apart from, groups F01M 1/00 - F01M 7/00 | 2011/028 | . . {for lubricating balance shafts} |
| 9/02 | . having means for introducing additives to lubricant | 11/03 | . Mounting or connecting of lubricant purifying means relative to the machine or engine; Details of lubricant purifying means (filters B01D) |
| 9/04 | . Use of fuel as lubricant | 2011/031 | . . {characterised by mounting means} |
| 9/06 | . Dip or splash lubrication | 2011/033 | . . . {comprising coolers or heat exchangers} |
| 9/08 | . Drip lubrication | 2011/035 | . . . {comprising oil pumps} |
| 9/10 | . Lubrication of valve gear or auxiliaries | 2011/036 | . . . {comprising pumps for the cooling circuit} |
| 9/101 | . . {of cam surfaces} | 2011/038 | . . . {comprising lubricant-air separators} |
| 9/102 | . . {of camshaft bearings} | 11/04 | . Filling or draining lubricant of or from machines or engines |
| 9/103 | . . {of valve stem and guide} | 11/0408 | . . {Sump drainage devices, e.g. valves, plugs} |
| 9/104 | . . {of tappets} | 2011/0416 | . . . {Plugs} |
| 9/105 | . . {using distribution conduits} | 2011/0425 | {with a device facilitating the change of oil} |
| 9/106 | . . {Oil reservoirs} | 2011/0433 | {with a device defining the lubricant level during filling} |
| 9/107 | . . {of rocker shaft bearings} | 2011/0441 | {for measuring the lubricant level} |
| 9/108 | . . {of auxiliaries} | 11/045 | . . {Removing lubricant by suction} |
| 9/109 | . . {of rotary slide or sleeve valves} | 11/0458 | . . {Lubricant filling and draining} |
| 9/12 | . Non-pressurised lubrication, or non-closed-circuit lubrication, not otherwise provided for | 2011/0466 | . . . {Filling or draining during running} |
| 11/00 | Component parts, details or accessories, not provided for in, or of interest apart from, groups F01M 1/00 - F01M 9/00 | 2011/0475 | {with combustion of used lubricant in the engine} |
| 11/0004 | . {Oilsumps} | 2011/0483 | . . {with a lubricant cartridge for facilitating the change} |
| 2011/0008 | . . {with means for reducing vibrations} | 2011/0491 | . . {Filing cap with special features} |
| 2011/0012 | . . . {with acoustic insulation} | 11/06 | . Means for keeping lubricant level constant or for accommodating movement or position of machines or engines |
| 2011/0016 | . . {with thermic insulation} | 11/061 | . . {Means for keeping lubricant level constant} |
| 2011/002 | . . {with means for improving the stiffness} | 11/062 | . . {Accommodating movement or position of machines or engines, e.g. dry sumps} |
| 2011/0025 | . . {with heat exchangers} | 11/064 | . . . {Movement} |
| 2011/0029 | . . {with oil filters} | 11/065 | . . . {Position} |
| 2011/0033 | . . {with special means for guiding the return of oil into the sump} | 11/067 | {inverted, e.g. for inverted flight} |
| 2011/0037 | . . {with different oil compartments} | 2011/068 | {with internal reservoir} |
| 2011/0041 | . . . {for accommodating movement or position of engines} | 11/08 | . Separating lubricant from air or fuel-air mixture before entry into cylinder (separating in general B01D) |
| 2011/0045 | . . . {for controlling the oil temperature} | 11/10 | . Indicating devices; Other safety devices |
| 2011/005 | . . {with special anti-turbulence means, e.g. anti-foaming means or intermediate plates} | 11/12 | . . concerning lubricant level |
| 2011/0054 | . . {Fastening to the cylinder block} | 2011/14 | . . {for indicating the necessity to change the oil} |
| 2011/0058 | . . {Fastening to the transmission} | 2011/1406 | . . . {by considering acidity} |
| 2011/0062 | . . {Gaskets} | 2011/1413 | . . . {by considering dielectric properties} |
| | | 2011/142 | . . . {by considering speed, e.g. revolutions per minute [RPM]} |

- 2011/1426 . . . {by considering distance}
- 2011/1433 . . . {by considering load}
- 2011/144 . . . {by considering magnetic properties of the oil}
- 2011/1446 . . . {by considering pressure}
- 2011/1453 . . . {by considering oil quantity}
- 2011/146 . . . {by considering moisture level}
- 2011/1466 . . . {by considering quantity of soot}
- 2011/1473 . . . {by considering temperature}
- 2011/148 . . . {by considering viscosity}
- 2011/1486 . . . {by considering duration of operation}
- 2011/1493 . . . {by considering total base number [TBN]}

13/00 Crankcase ventilating or breathing

- 2013/0005 . {with systems regulating the pressure in the carter}
- 13/0011 . {Breather valves}
- 2013/0016 . . {with a membrane}
- 2013/0022 . . {electromagnetic}
- 2013/0027 . . {with a de-icing or defrosting system}
- 13/0033 . {Breather inlet-air filters}
- 2013/0038 . {Layout of crankcase breathing systems}
- 2013/0044 . . {with one or more valves}
- 2013/005 . . {having one or more deoilers}
- 2013/0055 . . . {with a by-pass}
- 2013/0061 . . . {having a plurality of deoilers}
- 2013/0066 {in parallel}
- 2013/0072 {in series}
- 2013/0077 . {Engine parameters used for crankcase breather systems}
- 2013/0083 . . {Crankcase pressure}
- 2013/0088 . . {Rotation speed}
- 2013/0094 . . {Engine load}
- 13/02 . by means of additional source of positive or negative pressure
- 13/021 . . {of negative pressure}
- 13/022 . . . {using engine inlet suction}
- 13/023 {Control valves in suction conduit}
- 13/025 {with an inlet-conduit via an air-filter}
- 2013/026 . . . {with pumps sucking air or blow-by gases from the crankcase}
- 2013/027 . . . {with a turbo charger or compressor}
- 13/028 . . {of positive pressure}
- 13/04 . having means for purifying air before leaving crankcase, e.g. removing oil
- 13/0405 . . {arranged in covering members apertures, e.g. caps}
- 2013/0411 . . {using cooling means}
- 13/0416 . . {arranged in valve-covers}
- 2013/0422 . . {Separating oil and gas with a centrifuge device}
- 2013/0427 . . . {the centrifuge device having no rotating part, e.g. cyclone}
- 2013/0433 . . {with a deflection device, e.g. screen}
- 2013/0438 . . {with a filter}
- 2013/0444 . . {with means for accommodating movement or position of engines}
- 2013/045 . . {using compression or decompression of the gas}
- 2013/0455 . . {with a de-icing or defrosting system (for breathing valves [F01M 2013/0027](#))}
- 2013/0461 . . {with a labyrinth}
- 2013/0466 . . {with electrostatic means}
- 2013/0472 . . {using heating means}
- 2013/0477 . . {by separating water or moisture}
- 2013/0483 . . {using catalysis}

- 2013/0488 . . {with oil trap in the return conduit to the crankcase}
- 2013/0494 . . . {using check valves}
- 13/06 . specially adapted for submersible engines, e.g. of armoured vehicles

2250/00 Measuring

- 2250/60 . Operating parameters
- 2250/62 . Load
- 2250/64 . Number of revolutions
- 2250/66 . Vehicle speed