CPC COOPERATIVE PATENT CLASSIFICATION

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

ENGINES OR PUMPS

F01 MACHINES OR ENGINES IN GENERAL (combustion engines F02; machines for liquids F03, F04); ENGINE PLANTS IN GENERAL; STEAM ENGINES

F01M LUBRICATING OF MACHINES OR ENGINES IN GENERAL (lubricating in general F16N); LUBRICATING INTERNAL COMBUSTION ENGINES; CRANKCASE VENTILATING

NOTE

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

1/00 **Pressure lubrication**

1/02 . using lubricating pumps (pumps in general F04; lubricating pumps per se F16N)

2001/0207 . . {characterised by the type of pump}

2001/0215 . . . {Electrical pumps}

2001/0223 . . . {Electromagnetic pumps}

2001/023 . . . {Piston pumps}

2001/0238 . . . {Rotary pumps}

2001/0246 . . . {Adjustable pumps}

2001/0253 . . {characterised by the pump driving means}

2001/0261 . . . {driven by the camshaft}

2001/0269 . . . {driven by the crankshaft}

2001/0276 . . . {driven by a balancer shaft}

2001/0284 . . {mounting of the pump}

2001/0292 . . {Sealings}

1/04 . using pressure in working cylinder or crankcase to operate lubricant feeding devices

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)

2001/062 . . {Crankshaft with passageways}

2001/064 . . {Camshaft with passageways}

2001/066 . . {Connecting rod with passageways}

2001/068 . . {Bakance shaft with passageways}

1/08 . Lubricating systems characterised by the provision therein of lubricant jetting means

2001/083 . . {for lubricating cylinders}

2001/086 . . {for lubricating gudgeon pins}

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}

2001/105 . . {characterised by the layout of the purification arrangements}

2001/1057 . . . {comprising a plurality of filters, parallel or serial}

2001/1064 . . . {comprising drains for oil to the carter, e.g. to recover spilled oil during change of filters}

2001/1071 . . . {comprising oil tanks}

2001/1078 . . . {comprising an oil pick-up tube to oil pump, e.g. strainer}

2001/1085 . . . {comprising non-return valves}

2001/1092 . . . {comprising valves bypassing the filter}

1/12 . Closed-circuit lubricating systems not provided for in groups F01M 1/02 - F01M 1/10

2001/123 . . {using two or more pumps}

2001/126 . . {Dry-sumps}

1/14 . Timed lubrication (F01M 1/08 takes precedence)

1/16 . Controlling lubricant pressure or quantity (rendering machines or engines inoperative or idling on lubricant pressure failure F01M 1/22)

2001/165 . . {according to fuel dilution in oil}

1/18 . Indicating or safety devices (concerning lubricant level F01M 11/06, F01M 11/12)

1/20 . . concerning lubricant pressure

1/22 . . . rendering machines or engines inoperative or idling on pressure failure

1/24 . . . . acting on engine fuel system

1/26 . . . . acting on engine ignition system

1/28 . . . . acting on engine combustion-air supply

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)

3/02 . with variable proportion of lubricant to fuel, lubricant to air, or lubricant to fuel-air-mixture

3/04 . for upper cylinder lubrication only

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**

5/001 . {Heating}

5/002 . {Cooling}

2005/004 . . {Oil-cooled engines}
5/005 . {Controlling temperature of lubricant}
5/007 . . {Thermostatic control}
2005/008 . {Lubrication means facilitating engine starting}
5/02 . Conditioning lubricant for aiding engine starting, e.g. heating
5/021 . . {by heating}
2005/023 . . . {Oil sump with partition for facilitating heating of oil during starting}
5/025 . . {by prelubricating, e.g. using an accumulator}
2005/026 . . . {with an auxiliary pump}
2005/028 . . . {with a reservoir under pressure}
5/04 . . Diluting, e.g. with fuel

7/00 Lubrication means specially adapted for machine or engine running-in

9/00 Lubrication means having pertinent characteristics not provided for in, or of interest apart from, groups F01M 1/00 - F01M 7/00

9/02 . having means for introducing additives to lubricant
9/04 . Use of fuel as lubricant
9/06 . Dip or splash lubrication
9/08 . Drip lubrication
9/10 . Lubrication of valve gear or auxiliaries
9/101 . . {of cam surfaces}
9/102 . . {of camshaft bearings}
9/103 . . {of valve stem and guide}
9/104 . . {of tappets}
9/105 . . {using distribution conduits}
9/106 . . {Oil reservoirs}
9/107 . . {of rocker shaft bearings}
9/108 . . {of auxiliaries}
9/109 . . {of rotary slide or sleeve valves}
9/12 . Non-pressurised lubrication, or non-closed-circuit lubrication, not otherwise provided for

11/00 Component parts, details or accessories, not provided for in, or of interest apart from, groups F01M 1/00 - F01M 9/00

11/0004 . {Oilsumps}
2011/0008 . . {with means for reducing vibrations}
2011/0012 . . . {with acoustic insulation}
2011/0016 . . {with thermic insulation}
2011/002 . . {with means for improving the stiffness}
2011/0025 . . {with heat exchangers}
2011/0029 . . {with oil filters}
2011/0033 . . {with special means for guiding the return of oil into the sump}
2011/0037 . . {with different oil compartments}
2011/0041 . . . {for accommodating movement or position of engines}
2011/0045 . . . {for controlling the oil temperature}
2011/005 . . {with special anti-turbulence means, e.g. anti-foaming means or intermediate plates}
2011/0054 . . {Fastening to the cylinder block}
2011/0058 . . {Fastening to the transmission}
2011/0062 . . {Gaskets}
2011/0066 . . {with passages in the wall, e.g. for axles or fluid passages}
2011/007 . . {Oil pickup tube to oil pump, e.g. strainer}
2011/0075 . . . {with a plurality of tubes}
2011/0079 . . {with the oil pump integrated or fixed to sump}
2011/0083 . . {Dry sumps}
2011/0087 . . {Sump being made of different parts}
2011/0091 . . {characterised by used materials}
2011/0095 . {Supplementary oil tank}
11/02 . Arrangements of lubricant conduits
2011/021 . . {for lubricating auxiliaries, e.g. pumps or turbo chargers}
2011/022 . . {for lubricating cylinders}
2011/023 . . {between oil sump and cylinder head}
2011/025 . . {for lubricating gudgeon pins}
2011/026 . . {for lubricating crankshaft bearings}
2011/027 . . {for lubricating connecting rod bearings}
2011/028 . . {for lubricating balance shafts}
11/03 . Mounting or connecting of lubricant purifying means relative to the machine or engine; Details of lubricant purifying means (filters B01D)
2011/031 . . {characterised by mounting means}
2011/033 . . . {comprising coolers or heat exchangers}
2011/035 . . . {comprising oil pumps}
2011/036 . . . {comprising pumps for the cooling circuit}
2011/038 . . . {comprising lubricant-air separators}
11/04 . Filling or draining lubricant of or from machines or engines
11/0408 . . {Sump drainage devices, e.g. valves, plugs}
2011/0416 . . . {Plugs}
2011/0425 . . . . {with a device facilitating the change of oil}
2011/0433 . . . . {with a device defining the lubricant level during filling}
2011/0441 . . . . {for measuring the lubricant level}
11/045 . . {Removing lubricant by suction}
11/0458 . . {Lubricant filling and draining}
2011/0466 . . . {Filling or draining during running}
2011/0475 . . . . {with combustion of used lubricant in the engine}
2011/0483 . . {with a lubricant cartridge for facilitating the change}
2011/0491 . . {Filing cap with special features}
11/06 . Means for keeping lubricant level constant or for accommodating movement or position of machines or engines
11/061 . . {Means for keeping lubricant level constant}
11/062 . . {Accommodating movement or position of machines or engines, e.g. dry sumps}
11/064 . . . {Movement}
11/065 . . . {Position}
11/067 . . . . {inverted, e.g. for inverted flight}
2011/068 . . . . {with internal reservoir}
11/08 . Separating lubricant from air or fuel-air mixture before entry into cylinder (separating in general B01D)
11/10 . Indicating devices; Other safety devices
11/12 . . concerning lubricant level
2011/14 . . {for indicating the necessity to change the oil}
2011/1406 . . . {by considering acidity}
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