COOPERATIVE PATENT CLASSIFICATION

MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING

ENGINES OR PUMPS

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

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.

Pressure lubrication

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] . . . [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]

using pressure in working cylinder or crankcase to operate lubricant feeding devices

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] . . . [Balancemt shaft with passageways]

Lubricating systems characterised by the provision therein of lubricant jetting means

[2001/083] . . . [for lubricating cylinders]
[2001/086] . . . [for lubricating gudgeon pins]

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]

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

Using two or more pumps

Dry-sumps

Timed lubrication (F01M 1/08 takes precedence)

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

According to fuel dilution in oil

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

Concerning lubricant pressure

Rendering machines or engines inoperative or idling on pressure failure

Acting on engine fuel system

Acting on engine ignition system

Acting on engine combustion-air supply

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)

With variable proportion of lubricant to fuel, lubricant to air, or lubricant to fuel-air-mixture

For upper cylinder lubrication only
500 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

700 Lubrication means specially adapted for machine or engine running-in

900 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

1100 Component parts, details or accessories, not provided for in, or of interest apart from, groups F01M 1/00 - F01M 9/00

11/004 Oil sumps
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 turbochargers
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
2011/045 Removing lubricant by suction
2011/0458 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 Filling 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
2011/014 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}

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