

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.

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}		

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]}

F01M

- 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}
- 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