

CPC COOPERATIVE PATENT CLASSIFICATION

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

ENGINEERING IN GENERAL

F16 ENGINEERING ELEMENTS AND UNITS; GENERAL MEASURES FOR PRODUCING AND MAINTAINING EFFECTIVE FUNCTIONING OF MACHINES OR INSTALLATIONS; THERMAL INSULATION IN GENERAL

F16N LUBRICATING

NOTE

Attention is drawn to the following places:

A01D 69/12	Lubrication of harvesters;
B21J 3/00	Lubricating during forging or pressing;
B25D 17/26	Lubricating of portable power-driven percussive tools;
B60R 17/00	Arrangements or adaptations of lubricating; systems or devices in vehicles;
B61C 17/08	Lubrication systems for railway locomotives;
B62D 55/092	Vehicle endless-track units with lubrication means;
D04B 35/28	Devices for lubricating knitting machine parts;
E05B 17/08	Lubricating devices for locks;
E05D 11/02	Lubricating arrangements for hinges;
E21B 10/22	Lubricating details of roller drill bits for earth; drilling.

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.

Lubrication devices or arrangements for oil or grease

1/00 Constructional modifications of parts of machines or apparatus for the purpose of lubrication

3/00 Devices for supplying lubricant by manual action (draining equipment for liquid containers [B65D](#))

3/02 . delivering oil

3/04 . . Oil cans; Oil syringes

3/06 . . . delivering on squeezing

3/08 . . . incorporating a piston-pump

3/10 . delivering grease

3/12 . . Grease guns

5/00 Apparatus with hand-positioned nozzle supplied with lubricant under pressure ([F16N 3/00](#) takes precedence)

5/02 . Nozzles or nozzle-valve arrangements therefor, e.g. high-pressure grease guns

7/00 Arrangements for supplying oil or unspecified lubricant from a stationary reservoir or the equivalent in or on the machine or member to be lubricated (axle-box lubrication for railway rolling-stock [B61F 17/00](#))

7/02 . with gravity feed or drip lubrication

7/04 . . with oil flow promoted by vibration

7/06 . . Arrangements in which the droplets are visible

7/08 . . controlled by means of the temperature of the member to be lubricated ([thermostats G05D](#))

7/10 . . incorporating manually-operated control means, e.g. spindles

7/12 . with feed by capillary action, e.g. by wicks

7/14 . the lubricant being conveyed from the reservoir by mechanical means (by pumping devices [F16N 7/36](#), [F16N 7/38](#); adaptations for lubrication of machines or engines in general, of internal-combustion engines [F01M](#))

7/16 . . the oil being carried up by a lifting device (scoop devices in general [F04D](#))

7/18 . . . with one or more feed members fixed on a shaft

7/20 . . . with one or more members moving around the shaft to be lubricated

7/22 shaped as rings

7/24 . . . with discs, rollers, belts or the like contacting the shaft to be lubricated

7/26 . . Splash lubrication (mist lubrication [F16N 7/32](#))

7/28 . . Dip lubrication

7/30 . the oil being fed or carried along by another fluid (in internal-combustion engines [F02F](#))

7/32 . . Mist lubrication (splash lubrication [F16N 7/26](#))

7/34 . . . Atomising devices for oil (atomising devices in general [B05B](#))

7/36 . with feed by pumping action of the member to be lubricated or of a shaft of the machine; Centrifugal lubrication

7/363 . . {Centrifugal lubrication}

7/366 . . {with feed by pumping action of a vertical shaft of the machine}

7/38 . with a separate pump; Central lubrication systems

7/385 . . {Central lubrication systems}

7/40	<ul style="list-style-type: none"> in a closed circulation system 	17/06	<ul style="list-style-type: none"> in vacuum or under reduced pressure (lubrication of evacuating pumps F04; of rotary anodes of X-ray tubes H01J 35/10)
9/00	Arrangements for supplying oil or unspecified lubricant from a moving reservoir or the equivalent (also usable with a stationary reservoir F16N 7/00)	Details of lubricators or lubrication systems	
9/02	<ul style="list-style-type: none"> with reservoir on or in a rotary member 	19/00	Lubricant containers for use in lubricators or lubrication systems
9/04	<ul style="list-style-type: none"> with reservoir on or in a reciprocating, rocking, or swinging member 	19/003	<ul style="list-style-type: none"> {Indicating oil level (measuring liquid level in general G01F)}
11/00	Arrangements for supplying grease from a stationary reservoir or the equivalent in or on the machine or member to be lubricated; Grease cups	19/006	<ul style="list-style-type: none"> {Maintaining oil level (level control in general G05D 9/00)}
11/02	<ul style="list-style-type: none"> Hand-actuated grease cups, e.g. Stauffer cups 	21/00	Conduits; Junctions (in general F16L); Fittings for lubrication apertures
11/04	<ul style="list-style-type: none"> Spring-loaded devices 	2021/005	<ul style="list-style-type: none"> {Modular units}
11/06	<ul style="list-style-type: none"> Weight-loaded devices 	21/02	<ul style="list-style-type: none"> Lubricating nipples
11/08	<ul style="list-style-type: none"> with mechanical drive, other than directly by springs or weights (lubricating-pumps F16N 13/00) 	21/04	<ul style="list-style-type: none"> Nozzles for connection of lubricating equipment to nipples
11/10	<ul style="list-style-type: none"> by pressure of another fluid 	21/06	<ul style="list-style-type: none"> Covering members for nipples, conduits or apertures
11/12	<ul style="list-style-type: none"> by centrifugal action 	23/00	Special adaptations of check valves (check valves in general F16K)
13/00	Lubricating-pumps (oil cans with pump F16N 3/08; pumps for liquids in general F04)	25/00	Distributing equipment {with or without proportioning devices}
2013/003	<ul style="list-style-type: none"> {Flexible-wall pumps} 	25/02	<ul style="list-style-type: none"> with reciprocating distributing slide valve
2013/006	<ul style="list-style-type: none"> {Jet pumps} 	25/04	<ul style="list-style-type: none"> with rotary distributing member (combined with oil pump F16N 13/22)
13/02	<ul style="list-style-type: none"> with reciprocating piston (pumps with distributing equipment F16N 13/22) 	27/00	Proportioning devices (liquid meters G01F)
13/04	<ul style="list-style-type: none"> Adjustable reciprocating pumps 	27/005	<ul style="list-style-type: none"> {using restrictions}
13/06	<ul style="list-style-type: none"> Actuation of lubricating-pumps 	27/02	<ul style="list-style-type: none"> Gating equipment (multiple-way valves F16K; metering cocks G01F)
2013/063	<ul style="list-style-type: none"> {with electrical drive} 	29/00	Special means in lubricating arrangements or systems providing for the indication or detection of undesired conditions; Use of devices responsive to conditions in lubricating arrangements or systems
2013/066	<ul style="list-style-type: none"> {with electromagnetical drive} 	29/02	<ul style="list-style-type: none"> for influencing the supply of lubricant
13/08	<ul style="list-style-type: none"> by hand {or foot} 	29/04	<ul style="list-style-type: none"> enabling a warning to be given; enabling moving parts to be stopped
13/10	<ul style="list-style-type: none"> with mechanical drive (F16N 13/18 takes precedence) 	31/00	Means for collecting, retaining, or draining-off lubricant in or on machines or apparatus (oil separators for separating oil from exhaust steam F22G)
13/12	<ul style="list-style-type: none"> with ratchet 	31/002	<ul style="list-style-type: none"> {Drain pans}
13/14	<ul style="list-style-type: none"> with cam or wobble-plate on shaft parallel to the pump cylinder or cylinders 	31/004	<ul style="list-style-type: none"> {combined with container}
13/16	<ul style="list-style-type: none"> with fluid drive 	31/006	<ul style="list-style-type: none"> {Drip trays}
13/18	<ul style="list-style-type: none"> relative movement of pump parts being produced by inertia of one of the parts or of a driving member 	2031/008	<ul style="list-style-type: none"> {Drain plugs}
13/20	<ul style="list-style-type: none"> Rotary pumps (with distributing equipment F16N 13/22) 	31/02	<ul style="list-style-type: none"> Oil catchers; Oil wipers (oil-scraping rings for pistons F16J 9/20 {; cleaning means for indicating or measuring dip members, e.g. dipstick wipers G01F 23/045})
2013/205	<ul style="list-style-type: none"> {Screw pumps} 	2031/025	<ul style="list-style-type: none"> {Oil-slinger}
13/22	<ul style="list-style-type: none"> with distributing equipment (separate distributing equipment F16N 25/00) 	33/00	Mechanical arrangements for cleaning lubricating equipment; Special racks or the like for use in draining lubricant from machine parts
15/00	Lubrication with substances other than oil or grease; Lubrication characterised by the use of particular lubricants in particular apparatus or conditions (F16N 17/00 takes precedence; lubricating compositions, selection of particular substances as lubricants in general C10M)	2033/005	<ul style="list-style-type: none"> {Flushing}
15/02	<ul style="list-style-type: none"> with graphite or graphite-containing compositions 	Care of lubricants	
15/04	<ul style="list-style-type: none"> with water (bearings working in water F16C) 	35/00	Storage of lubricants in engine-rooms or the like (storage containers B65)
17/00	Lubrication of machines or apparatus working under extreme conditions (additives to lubricating oil or lubricating grease C10M)	37/00	Equipment for transferring lubricant from one container to another
17/02	<ul style="list-style-type: none"> at high temperature (of turbines F01D, F02C; lubrication of machines or engines in general, of internal-combustion engines F01M) 		
17/04	<ul style="list-style-type: none"> at low temperature (lubrication of refrigerating machines F25B) 		

37/003	• {for filling bearings}
2037/006	• {Filling}
37/02	• for filling grease guns
39/00	Arrangements for conditioning of lubricants in the lubricating system (cleaning of lubricating oil, lubricating compositions C10M)
39/002	• {by deaeration (degasification of liquids B01D 19/00)}
39/005	• {by evaporating or purifying (for heating or cooling of filters B01D 35/18 , e.g. comprising a vaporising unit B01D 35/185)}
2039/007	• {Using strainers}
39/02	• by cooling (heat-exchangers in general F28)
39/04	• by heating (heat-exchangers in general F28)
39/06	• by filtration (filters in general B01D ; magnetic separators B03C 1/00 ; {centrifugal separators or filters B04B 5/005 })
2039/065	• • {inlet foot filter}
39/08	• by diluting, e.g. by addition of fuel (lubrication of machines or engines in general, of internal-combustion engines F01M)
99/00	Subject matter not provided for in other groups of this subclass

2200/00	Condition of lubricant
2200/02	• Oxidation
2200/04	• Detecting debris, chips, swarfs
2200/06	• Film thickness
2200/08	• Acidity, pH-value
2200/10	• Temperature
2200/12	• Viscosity
2200/14	• Treating with electricity
2200/16	• using tracers
2200/18	• Detecting foaming
2200/20	• Detecting water

Care of lubricants

2210/00	Applications
2210/02	• Turbines
2210/025	• • Wind Turbines
2210/04	• Vehicles
2210/06	• Marine
2210/08	• Aircraft
2210/09	• • for inverted flight
2210/10	• Refrigerators
2210/12	• Gearings
2210/14	• Bearings
2210/16	• Pumps
2210/18	• Electric motors
2210/20	• Electric generators
2210/22	• Centrifuges
2210/24	• Conveyors
2210/26	• Spinning spindles
2210/28	• submerged
2210/30	• for reversed rotation
2210/32	• Sewing machines
2210/33	• Chains
2210/34	• Cables and wires

2230/00 Signal processing

2230/02	• Microprocessor; Microcomputer
2230/06	• using mapping techniques
2230/10	• Timing network
2230/12	• • with pneumatic elements
2230/13	• • with hydraulic elements
2230/14	• • with bimetallic elements
2230/16	• • with capacitors
2230/18	• Switches
2230/19	• • Photo sensor
2230/20	• • Reed relays
2230/22	• using counters

2250/00 Measuring

2250/04	• Pressure
2250/05	• • Atmospheric pressure
2250/06	• • for determining flow
2250/08	• Temperature
2250/11	• • Ambient temperature
2250/16	• Number of revolutions, RPM
2250/18	• Level
2250/30	• Dielectricum
2250/32	• Inductive
2250/34	• Transparency; Light; Photo sensor
2250/36	• Viscosity
2250/38	• Piezo; x-tal
2250/40	• Flow
2250/42	• Friction
2250/50	• Sampling
2250/52	• • magnetic

2260/00 Fail safe

2260/02	• Indicating
2260/04	• • Oil level
2260/05	• • Oil flow
2260/06	• • Temperature
2260/065	• • • by means of colours or dye
2260/08	• • Pressure
2260/12	• • using warning lamps
2260/14	• • using sound
2260/16	• • using recording
2260/18	• • necessity of changing oil
2260/20	• Emergency
2260/21	• • limping home
2260/22	• • Rupture
2260/24	• • using accumulator
2260/30	• Clogging filter
2260/32	• Pump failure
2260/40	• Pre-lubrication
2260/50	• After-lubrication
2260/60	• Limping home

2270/00 Controlling

2270/10	• Level
2270/12	• • using overflow (F16N 2270/18 takes precedence)
2270/14	• • using float device
2270/18	• • using overflow by filling
2270/20	• Amount of lubricant
2270/22	• • with restrictions
2270/24	• • • using porous, felt, ceramic, or sintered material
2270/26	• • • variable
2270/30	• • intermittent
2270/32	• • • Fixed pulse, fixed length, fixed amplitude
2270/48	• • • pressure-controlled

- 2270/50 . Condition
- 2270/52 . . Viscosity
- 2270/54 . . pH; Acidity
- 2270/56 . . Temperature
- 2270/60 . Pressure
- 2270/62 . . Limit
- 2270/64 . . Set-pressure
- 2270/70 . Supply
- 2270/72 . . on-off
- 2270/74 . . . only during use

2280/00 Valves

- 2280/02 . electromagnetically operated
- 2280/04 . Variable-flow or proportional valves