

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.

<u>Lubrication devices or arrangements for oil or grease</u>		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)
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)	7/16	• . . the oil being carried up by a lifting device (scoop devices in general F04D)
3/02	• delivering oil		
3/04	• . . Oil cans; Oil syringes	7/18	• . . . with one or more feed members fixed on a shaft
3/06	• . . . delivering on squeezing	7/20	• . . . with one or more members moving around the shaft to be lubricated
3/08	• . . . incorporating a piston-pump		
3/10	• delivering grease	7/22	• shaped as rings
3/12	• . . Grease guns	7/24	• . . . with discs, rollers, belts or the like contacting the shaft to be lubricated
5/00	Apparatus with hand-positioned nozzle supplied with lubricant under pressure (F16N 3/00 takes precedence)	7/26	• . . Splash lubrication (mist lubrication F16N 7/32)
		7/28	• . . Dip lubrication
5/02	• Nozzles or nozzle-valve arrangements therefor, e.g. high-pressure grease guns	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)
7/00	Arrangements for supplying oil or unspecified lubricant from a stationary reservoir or the equivalent in or on the machine or member to be lubricated	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
7/02	• with gravity feed or drip lubrication		
7/04	• . . with oil flow promoted by vibration	7/363	• . . {Centrifugal lubrication}
7/06	• . . Arrangements in which the droplets are visible	7/366	• . . {with feed by pumping action of a vertical shaft of the machine}
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	7/38	• with a separate pump; Central lubrication systems
		7/385	• . . {Central lubrication systems}
7/12	• with feed by capillary action, e.g. by wicks	7/40	• . . in a closed circulation system

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)		
9/02	. with reservoir on or in a rotary member		
9/04	. with reservoir on or in a reciprocating, rocking, or swinging member		
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		
11/02	. Hand-actuated grease cups, e.g. Stauffer cups		
11/04	. Spring-loaded devices		
11/06	. Weight-loaded devices		
11/08	. with mechanical drive, other than directly by springs or weights (lubricating-pumps F16N 13/00)		
11/10	. by pressure of another fluid		
11/12	. by centrifugal action		
13/00	Lubricating-pumps (oil cans with pump F16N 3/08; pumps for liquids in general F04)		
2013/003	. {Flexible-wall pumps}		
2013/006	. {Jet pumps}		
13/02	. with reciprocating piston (pumps with distributing equipment F16N 13/22)		
13/04	. . Adjustable reciprocating pumps		
13/06	. . Actuation of lubricating-pumps		
2013/063	. . . {with electrical drive}		
2013/066	. . . {with electromagnetical drive}		
13/08	. . . by hand {or foot}		
13/10	. . . with mechanical drive (F16N 13/18 takes precedence)		
13/12 with ratchet		
13/14 with cam or wobble-plate on shaft parallel to the pump cylinder or cylinders		
13/16	. . . with fluid drive		
13/18	. . . relative movement of pump parts being produced by inertia of one of the parts or of a driving member		
13/20	. Rotary pumps (with distributing equipment F16N 13/22)		
2013/205	. . {Screw pumps}		
13/22	. with distributing equipment (separate distributing equipment F16N 25/00)		
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)		
15/02	. with graphite or graphite-containing compositions		
15/04	. with water (bearings working in water F16C)		
17/00	Lubrication of machines or apparatus working under extreme conditions (additives to lubricating oil or lubricating grease C10M)		
17/02	. at high temperature (of turbines F01D , F02C ; lubrication of machines or engines in general, of internal-combustion engines F01M)		
17/04	. at low temperature (lubrication of refrigerating machines F25B)		
17/06	. in vacuum or under reduced pressure (lubrication of evacuating pumps F04 ; of rotary anodes of X-ray tubes H01J 35/10)		
		<u>Details of lubricators or lubrication systems</u>	
		19/00	Lubricant containers for use in lubricators or lubrication systems
		19/003	. {Indicating oil level (measuring liquid level in general G01F)}
		19/006	. {Maintaining oil level (level control in general G05D 9/00)}
		21/00	Conduits; Junctions (in general F16L); Fittings for lubrication apertures
		2021/005	. {Modular units}
		21/02	. Lubricating nipples
		21/04	. Nozzles for connection of lubricating equipment to nipples
		21/06	. Covering members for nipples, conduits or apertures
		23/00	Special adaptations of check valves (check valves in general F16K)
		25/00	Distributing equipment {with or without proportioning devices}
		25/02	. with reciprocating distributing slide valve
		25/04	. with rotary distributing member (combined with oil pump F16N 13/22)
		27/00	Proportioning devices (liquid meters G01F)
		27/005	. {using restrictions}
		27/02	. Gating equipment (multiple-way valves F16K ; metering cocks G01F)
		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
		29/02	. for influencing the supply of lubricant
		29/04	. enabling a warning to be given; enabling moving parts to be stopped
		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)
		31/002	. {Drain pans}
		31/004	. . {combined with container}
		31/006	. {Drip trays}
		2031/008	. {Drain plugs}
		31/02	. 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)
		2031/025	. . {Oil-slinger}
		33/00	Mechanical arrangements for cleaning lubricating equipment; Special racks or the like for use in draining lubricant from machine parts
		2033/005	. {Flushing}
			<u>Care of lubricants</u>
		35/00	Storage of lubricants in engine-rooms or the like (storage containers B65)
		37/00	Equipment for transferring lubricant from one container to another
		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