

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	7/12	• with feed by capillary action, e.g. by wicks
3/00	Devices for supplying lubricant by manual action (draining equipment for liquid containers B65D)	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)
3/02	• delivering oil	7/16	• . . the oil being carried up by a lifting device (scoop devices in general F04D)
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	7/22	• shaped as rings
3/10	• delivering grease	7/24	• . . with discs, rollers, belts or the like contacting the shaft to be lubricated
3/12	• . Grease guns	7/26	• . Splash lubrication (mist lubrication F16N 7/32)
5/00	Apparatus with hand-positioned nozzle supplied with lubricant under pressure (F16N 3/00 takes precedence)	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)
7/00	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)	7/32	• . Mist lubrication (splash lubrication F16N 7/26)
7/02	• with gravity feed or drip lubrication	7/34	• . . Atomising devices for oil (atomising devices in general B05B)
7/04	• . with oil flow promoted by vibration	7/36	• with feed by pumping action of the member to be lubricated or of a shaft of the machine; Centrifugal lubrication
7/06	• . Arrangements in which the droplets are visible	7/363	• . {Centrifugal lubrication}
7/08	• . controlled by means of the temperature of the member to be lubricated (thermostats G05D)	7/366	• . {with feed by pumping action of a vertical shaft of the machine}
7/10	• . incorporating manually-operated control means, e.g. spindles	7/38	• with a separate pump; Central lubrication systems
		7/385	• . {Central lubrication systems}

7/40	. . in a closed circulation system	17/06	. 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	. with reservoir on or in a rotary member	19/00	Lubricant containers for use in lubricators or lubrication systems
9/04	. with reservoir on or in a reciprocating, rocking, or swinging member	19/003	. { 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	. { Maintaining oil level (level control in general G05D 9/00) }
11/02	. Hand-actuated grease cups, e.g. Stauffer cups	21/00	Conduits; Junctions (in general F16L); Fittings for lubrication apertures
11/04	. Spring-loaded devices	2021/005	. { Modular units }
11/06	. Weight-loaded devices	21/02	. Lubricating nipples
11/08	. with mechanical drive, other than directly by springs or weights (lubricating-pumps F16N 13/00)	21/04	. Nozzles for connection of lubricating equipment to nipples
11/10	. by pressure of another fluid	21/06	. Covering members for nipples, conduits or apertures
11/12	. 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	. { Flexible-wall pumps }	25/02	. with reciprocating distributing slide valve
2013/006	. { Jet pumps }	25/04	. with rotary distributing member (combined with oil pump F16N 13/22)
13/02	. with reciprocating piston (pumps with distributing equipment F16N 13/22)	27/00	Proportioning devices (liquid meters G01F)
13/04	. . Adjustable reciprocating pumps	27/005	. { using restrictions }
13/06	. . Actuation of lubricating-pumps	27/02	. Gating equipment (multiple-way valves F16K ; metering cocks G01F)
2013/063	. . . { 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	. . . { with electromagnetical drive }	29/02	. for influencing the supply of lubricant
13/08	. . . by hand {or foot}	29/04	. enabling a warning to be given; enabling moving parts to be stopped
13/10	. . . 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 with ratchet	31/002	. { Drain pans }
13/14 with cam or wobble-plate on shaft parallel to the pump cylinder or cylinders	31/004	. . { combined with container }
13/16	. . . with fluid drive	31/006	. { Drip trays }
13/18	. . . relative movement of pump parts being produced by inertia of one of the parts or of a driving member	2031/008	. { Drain plugs }
13/20	. Rotary pumps (with distributing equipment F16N 13/22)	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 })
2013/205	. . { Screw pumps }	2031/025	. . { Oil-slinger }
13/22	. 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	. { Flushing }
15/02	. with graphite or graphite-containing compositions	Care of lubricants	
15/04	. 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	. 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)		

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