

# 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:

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

<b>1/00</b>	<b>Constructional modifications of parts of machines or apparatus for the purpose of lubrication</b>	7/12	• with feed by capillary action, e.g. by wicks
<b>3/00</b>	<b>Devices for supplying lubricant by manual action (draining equipment for liquid containers <a href="#">B65D</a>)</b>	7/14	• the lubricant being conveyed from the reservoir by mechanical means (by pumping devices <a href="#">F16N 7/36</a> , <a href="#">F16N 7/38</a> ; adaptations for lubrication of machines or engines in general, of internal-combustion engines <a href="#">F01M</a> )
3/02	• delivering oil	7/16	• . . the oil being carried up by a lifting device (scoop devices in general <a href="#">F04D</a> )
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 <a href="#">F16N 7/32</a> )
<b>5/00</b>	<b>Apparatus with hand-positioned nozzle supplied with lubricant under pressure (<a href="#">F16N 3/00</a> takes precedence)</b>	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 <a href="#">F02F</a> )
<b>7/00</b>	<b>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 <a href="#">B61F 17/00</a>)</b>	7/32	• . Mist lubrication (splash lubrication <a href="#">F16N 7/26</a> )
7/02	• with gravity feed or drip lubrication	7/34	• . . Atomising devices for oil (atomising devices in general <a href="#">B05B</a> )
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 <a href="#">G05D</a> )	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	17/04	. at low temperature (lubrication of refrigerating machines <a href="#">F25B</a> )
<b>9/00</b>	<b>Arrangements for supplying oil or unspecified lubricant from a moving reservoir or the equivalent (also usable with a stationary reservoir <a href="#">F16N 7/00</a>)</b>	17/06	. in vacuum or under reduced pressure (lubrication of evacuating pumps <a href="#">F04</a> ; of rotary anodes of X-ray tubes <a href="#">H01J 35/10</a> )
9/02	. with reservoir on or in a rotary member	<b>Details of lubricators or lubrication systems</b>	
9/04	. with reservoir on or in a reciprocating, rocking, or swinging member	<b>19/00</b>	<b>Lubricant containers for use in lubricators or lubrication systems</b>
<b>11/00</b>	<b>Arrangements for supplying grease from a stationary reservoir or the equivalent in or on the machine or member to be lubricated; Grease cups</b>	19/003	. {Indicating oil level (measuring liquid level in general <a href="#">G01F</a> )}
11/02	. Hand-actuated grease cups, e.g. Stauffer cups	19/006	. {Maintaining oil level (level control in general <a href="#">G05D 9/00</a> )}
11/04	. Spring-loaded devices	<b>21/00</b>	<b>Conduits; Junctions (in general <a href="#">F16L</a>); Fittings for lubrication apertures</b>
11/06	. Weight-loaded devices	2021/005	. {Modular units}
11/08	. with mechanical drive, other than directly by springs or weights ( <a href="#">lubricating-pumps F16N 13/00</a> )	21/02	. Lubricating nipples
11/10	. by pressure of another fluid	21/04	. Nozzles for connection of lubricating equipment to nipples
11/12	. by centrifugal action	21/06	. Covering members for nipples, conduits or apertures
<b>13/00</b>	<b>Lubricating-pumps (oil cans with pump <a href="#">F16N 3/08</a>; pumps for liquids in general <a href="#">F04</a>)</b>	<b>23/00</b>	<b>Special adaptations of check valves (check valves in general <a href="#">F16K</a>)</b>
2013/003	. {Flexible-wall pumps}	<b>25/00</b>	<b>Distributing equipment {with or without proportioning devices}</b>
2013/006	. {Jet pumps}	25/02	. with reciprocating distributing slide valve
13/02	. with reciprocating piston ( <a href="#">pumps with distributing equipment F16N 13/22</a> )	25/04	. with rotary distributing member ( <a href="#">combined with oil pump F16N 13/22</a> )
13/04	. . Adjustable reciprocating pumps	<b>27/00</b>	<b>Proportioning devices (liquid meters <a href="#">G01F</a>)</b>
13/06	. . Actuation of lubricating-pumps	27/005	. {using restrictions}
2013/063	. . . {with electrical drive}	27/02	. Gating equipment ( <a href="#">multiple-way valves F16K</a> ; metering cocks <a href="#">G01F</a> )
2013/066	. . . {with electromagnetical drive}	<b>29/00</b>	<b>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 (in bearings <a href="#">F16C</a>; constructions of apparatus outside the lubricating arrangements or systems, <a href="#">see the relevant classes</a>)</b>
13/08	. . . by hand {or foot}	29/02	. for influencing the supply of lubricant
13/10	. . . with mechanical drive ( <a href="#">F16N 13/18</a> takes precedence)	29/04	. enabling a warning to be given; enabling moving parts to be stopped
13/12	. . . . with ratchet	<b>31/00</b>	<b>Means for collecting, retaining, or draining-off lubricant in or on machines or apparatus (oil separators for separating oil from exhaust steam <a href="#">F22G</a>)</b>
13/14	. . . . with cam or wobble-plate on shaft parallel to the pump cylinder or cylinders	31/002	. {Drain pans}
13/16	. . . with fluid drive	31/004	. . {combined with container}
13/18	. . . relative movement of pump parts being produced by inertia of one of the parts or of a driving member	31/006	. {Drip trays}
13/20	. Rotary pumps ( <a href="#">with distributing equipment F16N 13/22</a> )	2031/008	. {Drain plugs}
2013/205	. . {Screw pumps}	31/02	. Oil catchers; Oil wipers (oil-scraping rings for pistons <a href="#">F16J 9/20</a> {; cleaning means for indicating or measuring dip members, e.g. dipstick wipers <a href="#">G01F 23/045</a> )
13/22	. with distributing equipment ( <a href="#">separate distributing equipment F16N 25/00</a> )	2031/025	. . {Oil-slinger}
<b>15/00</b>	<b>Lubrication with substances other than oil or grease; Lubrication characterised by the use of particular lubricants in particular apparatus or conditions (<a href="#">F16N 17/00</a> takes precedence; lubricating compositions, selection of particular substances as lubricants in general <a href="#">C10M</a>; bearings with surfaces incorporating lubricant <a href="#">F16C 33/04</a>; lubrication specially adapted to machines or apparatus provided for in a single other class, <a href="#">see the relevant class for the machine or apparatus</a>)</b>	<b>33/00</b>	<b>Mechanical arrangements for cleaning lubricating equipment; Special racks or the like for use in draining lubricant from machine parts</b>
15/02	. with graphite or graphite-containing compositions	2033/005	. {Flushing}
15/04	. with water ( <a href="#">bearings working in water F16C</a> )		
<b>17/00</b>	<b>Lubrication of machines or apparatus working under extreme conditions (additives to lubricating oil or lubricating grease <a href="#">C10M</a>)</b>		
17/02	. at high temperature (of turbines <a href="#">F01D</a> , <a href="#">F02C</a> ; lubrication of machines or engines in general, of internal-combustion engines <a href="#">F01M</a> )		

**Care of lubricants**

<b>35/00</b>	<b>Storage of lubricants in engine-rooms or the like</b> (storage containers <a href="#">B65</a> )
<b>37/00</b>	<b>Equipment for transferring lubricant from one container to another</b>
37/003	. {for filling bearings}
2037/006	. {Filling}
37/02	. for filling grease guns
<b>39/00</b>	<b>Arrangements for conditioning of lubricants in the lubricating system</b> (cleaning of lubricating oil, lubricating compositions <a href="#">C10M</a> )
39/002	. {by deaeration (degasification of liquids <a href="#">B01D 19/00</a> )}
39/005	. {by evaporating or purifying (for heating or cooling of filters <a href="#">B01D 35/18</a> , e.g. comprising a vaporising unit <a href="#">B01D 35/185</a> )}
2039/007	. {Using strainers}
39/02	. by cooling (heat-exchangers in general <a href="#">F28</a> )
39/04	. by heating (heat-exchangers in general <a href="#">F28</a> )
39/06	. by filtration (filters in general <a href="#">B01D</a> ; magnetic separators <a href="#">B03C 1/00</a> ; {centrifugal separators or filters <a href="#">B04B 5/005</a> })
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 <a href="#">F01M</a> )
<b>99/00</b>	<b>Subject matter not provided for in other groups of this subclass</b>

<b>2200/00</b>	<b>Condition of lubricant</b>
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**

<b>2210/00</b>	<b>Applications</b>
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	. Gearing
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
<b>2230/00</b>	<b>Signal processing</b>
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

<b>2250/00</b>	<b>Measuring</b>
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

<b>2260/00</b>	<b>Fail safe</b>
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

<b>2270/00</b>	<b>Controlling</b>
2270/10	. Level
2270/12	. . using overflow ( <a href="#">F16N 2270/18</a> 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