

# 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	17/06	. 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> )
<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>	<b>Details of lubricators or lubrication systems</b>	
9/02	. with reservoir on or in a rotary member	<b>19/00</b>	<b>Lubricant containers for use in lubricators or lubrication systems</b>
9/04	. with reservoir on or in a reciprocating, rocking, or swinging member	19/003	. { <a href="#">Indicating oil level (measuring liquid level in general <a href="#">G01F</a>)</a> }
<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>	19/006	. { <a href="#">Maintaining oil level (level control in general <a href="#">G05D 9/00</a>)</a> }
11/02	. Hand-actuated grease cups, e.g. Stauffer cups	<b>21/00</b>	<b>Conduits; Junctions (in general <a href="#">F16L</a>); Fittings for lubrication apertures</b>
11/04	. Spring-loaded devices	2021/005	. { <a href="#">Modular units</a> }
11/06	. Weight-loaded devices	21/02	. Lubricating nipples
11/08	. with mechanical drive, other than directly by springs or weights ( <a href="#">lubricating-pumps <a href="#">F16N 13/00</a></a> )	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	<b>23/00</b>	<b>Special adaptations of check valves (check valves in general <a href="#">F16K</a>)</b>
<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>25/00</b>	<b>Distributing equipment {with or without proportioning devices}</b>
2013/003	. { <a href="#">Flexible-wall pumps</a> }	25/02	. with reciprocating distributing slide valve
2013/006	. { <a href="#">Jet pumps</a> }	25/04	. with rotary distributing member ( <a href="#">combined with oil pump <a href="#">F16N 13/22</a></a> )
13/02	. with reciprocating piston ( <a href="#">pumps with distributing equipment <a href="#">F16N 13/22</a></a> )	<b>27/00</b>	<b>Proportioning devices (liquid meters <a href="#">G01F</a>)</b>
13/04	. . Adjustable reciprocating pumps	27/005	. { <a href="#">using restrictions</a> }
13/06	. . Actuation of lubricating-pumps	27/02	. Gating equipment ( <a href="#">multiple-way valves <a href="#">F16K</a></a> ; <a href="#">metering cocks <a href="#">G01F</a></a> )
2013/063	. . . { <a href="#">with electrical drive</a> }	<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</b>
2013/066	. . . { <a href="#">with electromagnetical drive</a> }	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 ( <a href="#">F16N 13/18 takes precedence</a> )	<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>
13/12	. . . . with ratchet	31/002	. { <a href="#">Drain pans</a> }
13/14	. . . . with cam or wobble-plate on shaft parallel to the pump cylinder or cylinders	31/004	. . { <a href="#">combined with container</a> }
13/16	. . . with fluid drive	31/006	. { <a href="#">Drip trays</a> }
13/18	. . . relative movement of pump parts being produced by inertia of one of the parts or of a driving member	2031/008	. { <a href="#">Drain plugs</a> }
13/20	. Rotary pumps ( <a href="#">with distributing equipment <a href="#">F16N 13/22</a></a> )	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> })
2013/205	. . { <a href="#">Screw pumps</a> }	2031/025	. . { <a href="#">Oil-slinger</a> }
13/22	. with distributing equipment ( <a href="#">separate distributing equipment <a href="#">F16N 25/00</a></a> )	<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>
<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 takes precedence</a>; lubricating compositions, selection of particular substances as lubricants in general <a href="#">C10M</a>)</b>	2033/005	. { <a href="#">Flushing</a> }
15/02	. with graphite or graphite-containing compositions	<b>Care of lubricants</b>	
15/04	. with water ( <a href="#">bearings working in water <a href="#">F16C</a></a> )	<b>35/00</b>	<b>Storage of lubricants in engine-rooms or the like (storage containers <a href="#">B65</a>)</b>
<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>	<b>37/00</b>	<b>Equipment for transferring lubricant from one container to another</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> )		
17/04	. at low temperature (lubrication of refrigerating machines <a href="#">F25B</a> )		

- 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