

# 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.

### 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>	7/14	• 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> )
<b>3/00</b>	<b>Devices for supplying lubricant by manual action (draining equipment for liquid containers <a href="#">B65D</a>)</b>	7/16	• . the oil being carried up by a lifting device (scoop devices in general <a href="#">F04D</a> )
3/02	• delivering oil	7/18	• . . with one or more feed members fixed on a shaft
3/04	• . Oil cans; Oil syringes	7/20	• . . with one or more members moving around the shaft to be lubricated
3/06	• . . delivering on squeezing	7/22	• . . . shaped as rings
3/08	• . . incorporating a piston-pump	7/24	• . . with discs, rollers, belts or the like contacting the shaft to be lubricated
3/10	• delivering grease	7/26	• . Splash lubrication (mist lubrication <a href="#">F16N 7/32</a> )
3/12	• . Grease guns	7/28	• . Dip lubrication
<b>5/00</b>	<b>Apparatus with hand-positioned nozzle supplied with lubricant under pressure (<a href="#">F16N 3/00</a> takes precedence)</b>	7/30	• the oil being fed or carried along by another fluid (in internal- combustion engines <a href="#">F02F</a> )
5/02	• Nozzles or nozzle-valve arrangements therefor, e.g. high-pressure grease guns	7/32	• . Mist lubrication (splash lubrication <a href="#">F16N 7/26</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>	7/34	• . . Atomising devices for oil (atomising devices in general <a href="#">B05B</a> )
7/02	• with gravity feed or drip lubrication	7/36	• with feed by pumping action of the member to be lubricated or of a shaft of the machine; Centrifugal 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 <a href="#">G05D</a> )	7/38	• with a separate pump; Central lubrication systems
7/10	• . incorporating manually-operated control means, e.g. spindles	7/385	• . {Central lubrication systems}
7/12	• with feed by capillary action, e.g. by wicks	7/40	• . in a closed circulation system
		<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>
		9/02	• with reservoir on or in a rotary member

9/04	<ul style="list-style-type: none"> <li>with reservoir on or in a reciprocating, rocking, or swinging member</li> </ul>
<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>
11/02	<ul style="list-style-type: none"> <li>Hand-actuated grease cups, e.g. Stauffer cups</li> </ul>
11/04	<ul style="list-style-type: none"> <li>Spring-loaded devices</li> </ul>
11/06	<ul style="list-style-type: none"> <li>Weight-loaded devices</li> </ul>
11/08	<ul style="list-style-type: none"> <li>with mechanical drive, other than directly by springs or weights (<a href="#">lubricating-pumps F16N 13/00</a>)</li> </ul>
11/10	<ul style="list-style-type: none"> <li>by pressure of another fluid</li> </ul>
11/12	<ul style="list-style-type: none"> <li>by centrifugal action</li> </ul>
<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>
2013/003	<ul style="list-style-type: none"> <li>{Flexible-wall pumps}</li> </ul>
2013/006	<ul style="list-style-type: none"> <li>{Jet pumps}</li> </ul>
13/02	<ul style="list-style-type: none"> <li>with reciprocating piston (pumps with distributing equipment <a href="#">F16N 13/22</a>)</li> </ul>
13/04	<ul style="list-style-type: none"> <li>Adjustable reciprocating pumps</li> </ul>
13/06	<ul style="list-style-type: none"> <li>Actuation of lubricating-pumps</li> </ul>
2013/063	<ul style="list-style-type: none"> <li>{with electrical drive}</li> </ul>
2013/066	<ul style="list-style-type: none"> <li>{with electromagnetical drive}</li> </ul>
13/08	<ul style="list-style-type: none"> <li>by hand {or foot}</li> </ul>
13/10	<ul style="list-style-type: none"> <li>with mechanical drive (<a href="#">F16N 13/18</a> takes precedence)</li> </ul>
13/12	<ul style="list-style-type: none"> <li>with ratchet</li> </ul>
13/14	<ul style="list-style-type: none"> <li>with cam or wobble-plate on shaft parallel to the pump cylinder or cylinders</li> </ul>
13/16	<ul style="list-style-type: none"> <li>with fluid drive</li> </ul>
13/18	<ul style="list-style-type: none"> <li>relative movement of pump parts being produced by inertia of one of the parts or of a driving member</li> </ul>
13/20	<ul style="list-style-type: none"> <li>Rotary pumps (with distributing equipment <a href="#">F16N 13/22</a>)</li> </ul>
2013/205	<ul style="list-style-type: none"> <li>{Screw pumps}</li> </ul>
13/22	<ul style="list-style-type: none"> <li>with distributing equipment (separate distributing equipment <a href="#">F16N 25/00</a>)</li> </ul>
<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</a> the relevant class for the machine or apparatus)</b>
15/02	<ul style="list-style-type: none"> <li>with graphite or graphite-containing compositions</li> </ul>
15/04	<ul style="list-style-type: none"> <li>with water (bearings working in water <a href="#">F16C</a>)</li> </ul>
<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	<ul style="list-style-type: none"> <li>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>)</li> </ul>
17/04	<ul style="list-style-type: none"> <li>at low temperature (lubrication of refrigerating machines <a href="#">F25B</a>)</li> </ul>
17/06	<ul style="list-style-type: none"> <li>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>)</li> </ul>

**Details of lubricators or lubrication systems**

<b>19/00</b>	<b>Lubricant containers for use in lubricators or lubrication systems</b>
19/003	<ul style="list-style-type: none"> <li>{Indicating oil level (measuring liquid level in general <a href="#">G01F</a>)}</li> </ul>
19/006	<ul style="list-style-type: none"> <li>{Maintaining oil level (level control in general <a href="#">G05D 9/00</a>)}</li> </ul>
<b>21/00</b>	<b>Conduits; Junctions (in general <a href="#">F16L</a>); Fittings for lubrication apertures</b>
2021/005	<ul style="list-style-type: none"> <li>{Modulair units}</li> </ul>
21/02	<ul style="list-style-type: none"> <li>Lubricating nipples</li> </ul>
21/04	<ul style="list-style-type: none"> <li>Nozzles for connection of lubricating equipment to nipples</li> </ul>
21/06	<ul style="list-style-type: none"> <li>Covering members for nipples, conduits or apertures</li> </ul>
<b>23/00</b>	<b>Special adaptations of check valves (check valves in general <a href="#">F16K</a>)</b>
<b>25/00</b>	<b>Distributing equipment {with or without proportioning devices}</b>
25/02	<ul style="list-style-type: none"> <li>with reciprocating distributing slide valve</li> </ul>
25/04	<ul style="list-style-type: none"> <li>with rotary distributing member (combined with oil pump <a href="#">F16N 13/22</a>)</li> </ul>
<b>27/00</b>	<b>Proportioning devices (liquid meters <a href="#">G01F</a>)</b>
27/005	<ul style="list-style-type: none"> <li>{using restrictions}</li> </ul>
27/02	<ul style="list-style-type: none"> <li>Gating equipment (multiple-way valves <a href="#">F16K</a>; metering cocks <a href="#">G01F</a>)</li> </ul>
<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</a> the relevant classes)</b>
29/02	<ul style="list-style-type: none"> <li>for influencing the supply of lubricant</li> </ul>
29/04	<ul style="list-style-type: none"> <li>enabling a warning to be given; enabling moving parts to be stopped</li> </ul>
<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>
31/002	<ul style="list-style-type: none"> <li>{Drain pans}</li> </ul>
31/004	<ul style="list-style-type: none"> <li>{combined with container}</li> </ul>
31/006	<ul style="list-style-type: none"> <li>{Drip trays}</li> </ul>
2031/008	<ul style="list-style-type: none"> <li>{Drain plugs}</li> </ul>
31/02	<ul style="list-style-type: none"> <li>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>)</li> </ul>
2031/025	<ul style="list-style-type: none"> <li>{Oil-slinger}</li> </ul>
<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>
2033/005	<ul style="list-style-type: none"> <li>{Flushing}</li> </ul>
<b>Care of lubricants</b>	
<b>35/00</b>	<b>Storage of lubricants in engine-rooms or the like (storage containers <a href="#">B65</a>)</b>
<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	. 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 ( <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