

CPC**COOPERATIVE PATENT CLASSIFICATION****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.

Lubrication devices or arrangements for oil or grease

- F16N 1/00** **Constructional modifications of parts of machines or apparatus for the purpose of lubrication**
- F16N 3/00** **Devices for supplying lubricant by manual action ([draining equipment for liquid containers B65D](#))**
 - F16N 3/02 . delivering oil
 - F16N 3/04 . . Oil cans; Oil syringes
 - F16N 3/06 . . . delivering on squeezing
 - F16N 3/08 . . . incorporating a piston-pump
 - F16N 3/10 . delivering grease
 - F16N 3/12 . . Grease guns
- F16N 5/00** **Apparatus with hand-positioned nozzle supplied with lubricant under pressure ([F16N 3/00](#) takes precedence)**
 - F16N 5/02 . Nozzles or nozzle-valve arrangements therefor, e.g. high-pressure grease guns
- F16N 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](#))**

- F16N 7/02 . with gravity feed or drip lubrication
- F16N 7/04 . . with oil flow promoted by vibration
- F16N 7/06 . . Arrangements in which the droplets are visible
- F16N 7/08 . . controlled by means of the temperature of the member to be lubricated (thermostats [G05D](#))
- F16N 7/10 . . incorporating manually-operated regulating means, e.g. spindles
- F16N 7/12 . with feed by capillary action, e.g. by wicks
- F16N 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](#))
- F16N 7/16 . . the oil being carried up by a lifting device (scoop devices in general [F04D](#))
- F16N 7/18 . . . with one or more feed members fixed on a shaft
- F16N 7/20 . . . with one or more members moving around the shaft to be lubricated
- F16N 7/22 shaped as rings
- F16N 7/24 . . . with discs, rollers, belts or the like contacting the shaft to be lubricated
- F16N 7/26 . . Splash lubrication (mist lubrication [F16N 7/32](#))
- F16N 7/28 . . Dip lubrication
- F16N 7/30 . the oil being fed or carried along by another fluid (in internal- combustion engines [F02F](#))
- F16N 7/32 . . Mist lubrication (splash lubrication [F16N 7/26](#))
- F16N 7/34 . . . Atomising devices for oil (atomising devices in general [B05B](#))
- F16N 7/36 . with feed by pumping action of the member to be lubricated or of a shaft of the machine; Centrifugal lubrication
- F16N 7/363 . . {Centrifugal lubrication}
- F16N 7/366 . . {with feed by pumping action of a vertical shaft of the machine}
- F16N 7/38 . with a separate pump; Central lubrication systems
- F16N 7/385 . . {Central lubrication systems}
- F16N 7/40 . . in a closed circulation system

- F16N 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](#))**
- F16N 9/02 . with reservoir on or in a rotary member
- F16N 9/04 . with reservoir on or in a reciprocating, rocking, or swinging member

- F16N 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**
- F16N 11/02 . Hand-actuated grease cups, e.g. Stauffer cups
- F16N 11/04 . Spring-loaded devices
- F16N 11/06 . Weight-loaded devices
- F16N 11/08 . with mechanical drive, other than directly by springs or weights (lubricating-pumps [F16N 13/00](#))
- F16N 11/10 . by pressure of another fluid
- F16N 11/12 . by centrifugal action

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| F16N 13/00 | Lubricating-pumps (oil cans with pump F16N 3/08 ; pumps for liquids in general F04) |
| F16N 2013/003 | . {Flexible-wall pumps} |
| F16N 2013/006 | . {Jet pumps} |
| F16N 13/02 | . with reciprocating piston (pumps with distributing equipment F16N 13/22) |
| F16N 13/04 | .. Adjustable reciprocating pumps |
| F16N 13/06 | .. Actuation of lubricating-pumps |
| F16N 2013/063 | ... {with electrical drive} |
| F16N 2013/066 | ... {with electromagnetical drive} |
| F16N 13/08 | ... by hand {or foot} |
| F16N 13/10 | ... with mechanical drive (F16N 13/18 takes precedence) |
| F16N 13/12 | with ratchet |
| F16N 13/14 | with cam or wobble-plate on shaft parallel to the pump cylinder or cylinders |
| F16N 13/16 | ... with fluid drive |
| F16N 13/18 | ... relative movement of pump parts being produced by inertia of one of the parts or of a driving member |
| F16N 13/20 | . Rotary pumps (with distributing equipment F16N 13/22) |
| F16N 2013/205 | .. {Screw pumps} |
| F16N 13/22 | . with distributing equipment (separate distributing equipment F16N 25/00) |
| F16N 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 ; bearings with surfaces incorporating lubricant F16C 33/04 ; lubrication specially adapted to machines or apparatus provided for in a single other class, see the relevant class for the machine or apparatus) |
| F16N 15/02 | . with graphite or graphite-containing compositions |
| F16N 15/04 | . with water (bearings working in water F16C) |
| F16N 17/00 | Lubrication of machines or apparatus working under extreme conditions (additives to lubricating oil or lubricating grease C10M) |
| F16N 17/02 | . at high temperature (of turbines F01D , F02C ; lubrication of machines or engines in general, of internal-combustion engines F01M) |
| F16N 17/04 | . at low temperature (lubrication of refrigerating machines F25B) |
| F16N 17/06 | . in vacuum or under reduced pressure (lubrication of evacuating pumps F04 ; of rotary anodes of X-ray tubes H01J 35/10) |

Details of lubricators or lubrication systems

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| F16N 19/00 | Lubricant containers for use in lubricators or lubrication systems |
| F16N 19/003 | . {Indicating oil level (measuring liquid level in general G01F)} |
| F16N 19/006 | . {Maintaining oil level (level control in general G05D 9/00)} |

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| F16N 21/00 | Conduits; Junctions (in general F16L); Fittings for lubrication apertures |
| F16N 2021/005 | . {Modulair units} |
| F16N 21/02 | . Lubricating nipples |
| F16N 21/04 | . Nozzles for connection of lubricating equipment to nipples |
| F16N 21/06 | . Covering members for nipples, conduits or apertures |
| F16N 23/00 | Special adaptations of check valves (check valves in general F16K) |
| F16N 25/00 | Distributing equipment {with or without proportioning devices} |
| F16N 25/02 | . with reciprocating distributing slide valve |
| F16N 25/04 | . with rotary distributing member (combined with oil pump F16N 13/22) |
| F16N 27/00 | Proportioning devices (liquid meters G01F) |
| F16N 27/005 | . {using restrictions} |
| F16N 27/02 | . Gating equipment (multiple-way valves F16K ; metering cocks G01F) |
| F16N 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 (in bearings F16C; constructions of apparatus outside the lubricating arrangements or systems, see the relevant classes) |
| F16N 29/02 | . for influencing the supply of lubricant |
| F16N 29/04 | . enabling a warning to be given; enabling moving parts to be stopped |
| F16N 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) |
| F16N 31/002 | . {Drain pans} |
| F16N 31/004 | . . {combined with container} |
| F16N 31/006 | . {Drip trays} |
| F16N 2031/008 | . {Drain plugs} |
| F16N 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 }) |
| F16N 2031/025 | . . {Oil-slinger} |
| F16N 33/00 | Mechanical arrangements for cleaning lubricating equipment; Special racks or the like for use in draining lubricant from machine parts |
| F16N 2033/005 | . {Flushing} |
| <u>Care of lubricants</u> | |
| F16N 35/00 | Storage of lubricants in engine-rooms or the like (storage containers B65) |
| F16N 37/00 | Equipment for transferring lubricant from one container to another |
| F16N 37/003 | . {for filling bearings} |

- F16N 2037/006 . {Filling}
- F16N 37/02 . for filling grease guns

F16N 39/00 Arrangements for conditioning of lubricants in the lubricating system
(cleaning of lubricating oil, lubricating compositions [C10M](#))

- F16N 39/002 . {by deaeration (degasification of liquids [B01D 19/00](#))}
- F16N 39/005 . {by evaporating or purifying (for heating or cooling of filters [B01D 35/18](#), e.g. comprising a vaporising unit [B01D 35/185](#))}
- F16N 2039/007 . {Using strainers}
- F16N 39/02 . by cooling (heat-exchangers in general [F28](#))
- F16N 39/04 . by heating (heat-exchangers in general [F28](#))
- F16N 39/06 . by filtration (filters in general [B01D](#); magnetic separators [B03C 1/00](#); {centrifugal separators or filters [B04B 5/005](#)})
- F16N 2039/065 . . {inlet foot filter}
- F16N 39/08 . by diluting, e.g. by addition of fuel (lubrication of machines or engines in general, of internal-combustion engines [F01M](#))

F16N 99/00 Subject matter not provided for in other groups of this subclass

F16N 2200/00 Condition of lubricant

- F16N 2200/02 . Oxidation
- F16N 2200/04 . Detecting debris, chips, swarfs
- F16N 2200/06 . Film thickness
- F16N 2200/08 . Acidity, pH-value
- F16N 2200/10 . Temperature
- F16N 2200/12 . Viscosity
- F16N 2200/14 . Treating with electricity
- F16N 2200/16 . using tracers
- F16N 2200/18 . Detecting foaming
- F16N 2200/20 . Detecting water

Care of lubricants

F16N 2210/00 Applications

- F16N 2210/02 . Turbines
- F16N 2210/025 . . Wind Turbines
- F16N 2210/04 . Vehicles
- F16N 2210/06 . Marine
- F16N 2210/08 . Aircraft
- F16N 2210/09 . . for inverted flight
- F16N 2210/10 . Refrigerators
- F16N 2210/12 . Gearings

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| F16N 2210/14 | . Bearings |
| F16N 2210/16 | . Pumps |
| F16N 2210/18 | . Electric motors |
| F16N 2210/20 | . Electric generators |
| F16N 2210/22 | . Centrifuges |
| F16N 2210/24 | . Conveyers |
| F16N 2210/26 | . Spinning spindles |
| F16N 2210/28 | . submerged |
| F16N 2210/30 | . for reversed rotation |
| F16N 2210/32 | . Sewing machines |
| F16N 2210/33 | . Chains |
| F16N 2210/34 | . Cables and wires |

F16N 2230/00**Signal processing**

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| F16N 2230/02 | . Microprocessor; Microcomputer |
| F16N 2230/06 | . using mapping techniques |
| F16N 2230/10 | . Timing network |
| F16N 2230/12 | .. with pneumatic elements |
| F16N 2230/13 | .. with hydraulic elements |
| F16N 2230/14 | .. with bimetallic elements |
| F16N 2230/16 | .. with capacitors |
| F16N 2230/18 | . Switches |
| F16N 2230/19 | .. Photo sensor |
| F16N 2230/20 | .. Reed relays |
| F16N 2230/22 | . using counters |

F16N 2250/00**Measuring**

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| F16N 2250/04 | . Pressure |
| F16N 2250/05 | .. Atmospheric pressure |
| F16N 2250/06 | .. for determining flow |
| F16N 2250/08 | . Temperature |
| F16N 2250/11 | .. Ambient temperature |
| F16N 2250/16 | . Number of revolutions, RPM |
| F16N 2250/18 | . Level |
| F16N 2250/30 | . Dielectricum |
| F16N 2250/32 | . Inductive |
| F16N 2250/34 | . Transparency; Light; Photo sensor |
| F16N 2250/36 | . Viscosity |
| F16N 2250/38 | . Piezo; x-tal |
| F16N 2250/40 | . Flow |
| F16N 2250/42 | . Friction |

- F16N 2250/50 . Sampling
- F16N 2250/52 .. magnetic

F16N 2260/00**Fail safe**

- F16N 2260/02 . Indicating
- F16N 2260/04 .. Oil level
- F16N 2260/05 .. Oil flow
- F16N 2260/06 .. Temperature
- F16N 2260/065 ... by means of colours or dye
- F16N 2260/08 .. Pressure
- F16N 2260/12 .. using warning lamps
- F16N 2260/14 .. using sound
- F16N 2260/16 .. using recording
- F16N 2260/18 .. necessity of changing oil
- F16N 2260/20 . Emergency
- F16N 2260/21 .. limping home
- F16N 2260/22 .. Rupture
- F16N 2260/24 .. using accumulator
- F16N 2260/30 . Clogging filter
- F16N 2260/32 . Pump failure
- F16N 2260/40 . Pre-lubrication
- F16N 2260/50 . After-lubrication
- F16N 2260/60 . Limping home

F16N 2270/00**Controlling**

- F16N 2270/10 . Level
- F16N 2270/12 .. using overflow ([F16N 2270/18](#) takes precedence)
- F16N 2270/14 .. using float device
- F16N 2270/18 .. using overflow by filling
- F16N 2270/20 . Amount of lubricant
- F16N 2270/22 .. with restrictions
- F16N 2270/24 ... using porous, felt, ceramic, or sintered material
- F16N 2270/26 ... variable
- F16N 2270/30 .. intermittent
- F16N 2270/32 ... Fixed pulse, fixed length, fixed amplitude
- F16N 2270/48 ... pressure-controlled
- F16N 2270/50 . Condition
- F16N 2270/52 .. Viscosity
- F16N 2270/54 .. pH; Acidity
- F16N 2270/56 .. Temperature
- F16N 2270/60 . Pressure

- F16N 2270/62 . . Limit
- F16N 2270/64 . . Set-pressure
- F16N 2270/70 . Supply
- F16N 2270/72 . . on-off
- F16N 2270/74 . . . only during use

F16N 2280/00

Valves

- F16N 2280/02 . electromagnetically operated
- F16N 2280/04 . Variable-flow or proportional valves