

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
- F16N 13/00** **Lubricating-pumps** (oil cans with pump [F16N 3/08](#); pumps for liquids in general [F04](#))
- 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 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 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

- 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](#))}
- F16N 21/00** **Conduits; Junctions** (in general [F16L](#)); **Fittings for lubrication apertures**
- 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 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 33/00** **Mechanical arrangements for cleaning lubricating equipment; Special racks or the like for use in draining lubricant from machine parts**
- Care of lubricants**
- 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 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 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 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 2013/00** **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 2013/02 . with reciprocating piston ([pumps with distributing equipment F16N 13/22](#))
- F16N 2013/06 .. Actuation of lubricating-pumps
- [F16N 2013/063](#) ... with electrical drive
- [F16N 2013/066](#) ... with electromagnetical drive

- F16N 2013/20 . Rotary pumps ([with distributing equipment F16N 13/22](#))
- [F16N 2013/205](#) .. Screw pumps

- F16N 2021/00 Conduits; Junctions ([in general F16L](#)); Fittings for lubrication apertures**

- [F16N 2021/005](#) . Modulair units

- F16N 2031/00 Means for collecting, retaining, or draining-off lubricant in or on machines or apparatus ([oil separators for separating oil from exhaust steam F22G](#))**

- [F16N 2031/008](#) . Drain plugs
- F16N 2031/02 . 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 2033/00 Mechanical arrangements for cleaning lubricating equipment; Special racks or the like for use in draining lubricant from machine parts**

- [F16N 2033/005](#) . Flushing

- F16N 2037/00 Equipment for transferring lubricant from one container to another**

- [F16N 2037/006](#) . Filling

- F16N 2039/00 Arrangements for conditioning of lubricants in the lubricating system ([cleaning of lubricating oil, lubricating compositions C10M](#))**

- [F16N 2039/007](#) . Using strainers
- F16N 2039/06 . 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 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
- 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****
- 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****
- 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