

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 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

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 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}

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 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
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