

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

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|---------------------------|---|
| 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 | <ul style="list-style-type: none"> • delivering oil |
| F16N 3/04 | <ul style="list-style-type: none"> • • Oil cans; Oil syringes |
| F16N 3/06 | <ul style="list-style-type: none"> • • • delivering on squeezing |
| F16N 3/08 | <ul style="list-style-type: none"> • • • incorporating a piston-pump |
| F16N 3/10 | <ul style="list-style-type: none"> • delivering grease |
| F16N 3/12 | <ul style="list-style-type: none"> • • Grease guns |
| F16N 5/00 | Apparatus with hand-positioned nozzle supplied with lubricant under pressure (F16N 3/00 takes precedence) |
| F16N 5/02 | <ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> with gravity feed or drip lubrication
F16N 7/04	<ul style="list-style-type: none"> with oil flow promoted by vibration
F16N 7/06	<ul style="list-style-type: none"> Arrangements in which the droplets are visible
F16N 7/08	<ul style="list-style-type: none"> controlled by means of the temperature of the member to be lubricated (thermostats G05D)
F16N 7/10	<ul style="list-style-type: none"> incorporating manually-operated regulating means, e.g. spindles
F16N 7/12	<ul style="list-style-type: none"> with feed by capillary action, e.g. by wicks
F16N 7/14	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> the oil being carried up by a lifting device (scoop devices in general F04D)
F16N 7/18	<ul style="list-style-type: none"> with one or more feed members fixed on a shaft
F16N 7/20	<ul style="list-style-type: none"> with one or more members moving around the shaft to be lubricated
F16N 7/22	<ul style="list-style-type: none"> shaped as rings
F16N 7/24	<ul style="list-style-type: none"> with discs, rollers, belts or the like contacting the shaft to be lubricated
F16N 7/26	<ul style="list-style-type: none"> Splash lubrication (mist lubrication F16N 7/32)
F16N 7/28	<ul style="list-style-type: none"> Dip lubrication
F16N 7/30	<ul style="list-style-type: none"> the oil being fed or carried along by another fluid (in internal-combustion engines F02F)
F16N 7/32	<ul style="list-style-type: none"> Mist lubrication (splash lubrication F16N 7/26)
F16N 7/34	<ul style="list-style-type: none"> Atomising devices for oil (atomising devices in general B05B)
F16N 7/36	<ul style="list-style-type: none"> with feed by pumping action of the member to be lubricated or of a shaft of the machine; Centrifugal lubrication
F16N 7/363	<ul style="list-style-type: none"> {Centrifugal lubrication}
F16N 7/366	<ul style="list-style-type: none"> {with feed by pumping action of a vertical shaft of the machine}
F16N 7/38	<ul style="list-style-type: none"> with a separate pump; Central lubrication systems
F16N 7/385	<ul style="list-style-type: none"> {Central lubrication systems}
F16N 7/40	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> with reservoir on or in a rotary member
F16N 9/04	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Hand-actuated grease cups, e.g. Stauffer cups
F16N 11/04	<ul style="list-style-type: none"> Spring-loaded devices
F16N 11/06	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> • {Indicating oil level (measuring liquid level in general G01F)}
F16N 19/006	<ul style="list-style-type: none"> • {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	<ul style="list-style-type: none"> • {Modulair units}
F16N 21/02	<ul style="list-style-type: none"> • Lubricating nipples
F16N 21/04	<ul style="list-style-type: none"> • Nozzles for connection of lubricating equipment to nipples
F16N 21/06	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • with reciprocating distributing slide valve
F16N 25/04	<ul style="list-style-type: none"> • with rotary distributing member (combined with oil pump F16N 13/22)
F16N 27/00	Proportioning devices (liquid meters G01F)
F16N 27/005	<ul style="list-style-type: none"> • {using restrictions}
F16N 27/02	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • for influencing the supply of lubricant
F16N 29/04	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • {Drain pans}
F16N 31/004	<ul style="list-style-type: none"> • . {combined with container}
F16N 31/006	<ul style="list-style-type: none"> • {Drip trays}
F16N 2031/008	<ul style="list-style-type: none"> • {Drain plugs}
F16N 31/02	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • . {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	<ul style="list-style-type: none"> • {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