

F16N

LUBRICATING

Definition statement

This subclass/group covers:

Constructional modifications of parts of machines or apparatus for the purposes of lubrication.

Devices for supplying lubricant, e.g. oil or grease, from a stationary or movable reservoir to the machine or member to be lubricated, or for supplying lubricant by manual action or by a hand-positioned nozzle with lubricant under pressure.

Lubricating-pumps.

Lubrication using substances other than oil or grease.

Lubrication characterised by the use of particular lubricants in particular apparatus or conditions.

Lubrication of apparatus working in extreme conditions.

Details of lubricators or lubrication systems, e.g. reservoirs, conduits, check valves, distributing equipment, collecting or draining lubricant, cleaning.

Safety devices for indication or detection of undesired conditions, or use of devices responsive to conditions in lubricating arrangements or systems.

Care of lubricants, e.g. storage, transfer.

Conditioning lubricants, e.g. by heating, cooling, filtering, diluting.

Relationship between large subject matter areas

[F16N](#) is the general or function-oriented subclass for lubrication subject-matter, but there are many application-oriented places in the Classification where subject-matter for specially-adapted forms of lubrication can be found ? see the references below. Lubrication specially adapted to machines or apparatus provided for in a single other class is covered by the relevant class for that machine or apparatus.

References relevant to classification in this subclass

This subclass/group does not cover:

| | |
|---|---------------------------|
| Processes for applying liquids or other fluent materials to a surface, to obtain an anti-friction surface | B05D 5/08 |
| Manufacture of articles or materials | C08J 5/16 |

| | |
|--|----------------------|
| containing macromolecular substances and having reduced friction | |
| Lubricating compositions; Selection of particular substances as lubricants | C10M |

| | |
|---|---|
| Lubrication of harvesters or mowers | A01D 69/12 |
| Lubrication of mandrels for metal tube rolling mills | B21B 25/04 |
| Lubrication of rolls for metal rolling mills | B21B 27/06 |
| Lubrication of tools for machines for working metal without removing material | B21D 37/18 |
| Lubricating during forging or pressing | B21J 3/00 |
| Lubrication of moulds for continuous casting of metals | B22D 11/07 |
| Lubrication of milling-cutters | B23C 5/28 |
| Lubrication of metal saws | B23D 59/02 , B23D 59/04 |
| Lubrication of machine-tools | B23Q 11/10 , B23Q 11/12 |
| Lubrication of portable power-driven percussive tools | B25D 17/26 |
| Lubrication of hair-clippers or dry-shavers | B26B 19/40 |
| Lubrication of band saw blades for wood or the like | B27B 13/12 |
| Arrangements or adaptations of lubricating systems or devices in vehicles | B60R 17/00 |
| Lubrication of cable systems for railways | B61B 12/08 |

| | |
|---|---|
| Lubrication systems for railway locomotives | B61C 17/08 |
| Axle-box lubrication for railway rolling-stock | B61F 17/00 |
| Lubrication of rail or wheel flanges of railways | B61K 3/00 |
| Vehicle endless-track units with lubrication means | B62D 55/092 |
| Lubrication of cycles | B62J 31/00 |
| Lubrication of conveyers | B65G 45/02 |
| Lubrication of ropes, cables or guides of elevators | B66B 7/12 |
| Lubrication of spindles of machines for spinning or twisting threads or fibres | D01H 7/20 |
| Lubrication of knitting-machines | D04B 35/28 |
| Lubrication of sewing-machines | D05B 71/00 |
| Lubrication of embroidering-machines | D05C 13/04 |
| Lubrication of switches for railways | E01B 7/26 |
| Lubricating devices for locks | E05B 17/08 |
| Lubricating arrangements for hinges | E05D 11/02 |
| Lubricating details of roller drill bits for earth drilling | E21B 10/22 |
| Lubrication of rotary-piston or oscillating-piston machines or engines as such | F01C 21/04 |
| Lubrication of non-positive displacement machines or engines, e.g. steam turbines, Windmill | F01D 25/18 , F03D 11/00 |

| | |
|---|----------------------------|
| Lubrication of machines or apparatus working under extreme conditions, at high temperature, of turbines | F02C |
| Lubrication of gas-turbine plants | F02C 7/06 |
| Lubrication of cylinders of combustion engines | F02F 1/20 |
| Lubrication of evacuating pumps | F04 |
| Lubrication of pumps for elastic fluids | F04B 39/02 |
| Lubrication of rotary-piston or oscillating-piston pumps for elastic fluids | F04C 29/02 |
| Lubrication of non-positive displacement pumps | F04D 29/04 |
| Lubrication of flexible shafts | F16C 1/24 |
| Lubrication of sliding-contact bearings | F16C 33/10 |
| Lubrication of ball or roller bearings | F16C 33/66 |
| Lubrication of springs | F16F 1/24 |
| Lubrication of transmissions | F16H 57/04 |
| Oil separators for separating oil from exhaust steam | F22G |
| Lubrication of refrigerating machines | F25B |
| Lubrication of smallarms or ordnance | F41A 29/04 |
| Lubrication of clocks | G04B 31/08 |
| Lubrication of rotary anodes of X-ray tubes | H01J 35/10 |
| Lubrication of rotary current collectors, distributors or interrupters | H01R 39/56 |

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|--|----------------------|
| Storage containers; draining equipment for liquid containers | B65 |
| Lubrication of machines or engines in general, including internal-combustion engines | F01M |

Special rules of classification within this subclass

Horizontal schemes for technical features cover the following aspects related to the control of lubrication:

Condition of lubricant

Applications

Signal processing

Measuring

Controlling

Fail safe

Valves

Glossary of terms

In this subclass/group, the following terms (or expressions) are used with the meaning indicated:

| | |
|-------------|---|
| Lubricant | Any fluid (e.g. water, oil), fluent material (e.g. particulate graphite), semi-fluid material (e.g. oil with thickener), or semisolid material (e.g. grease), or any mixture of such types of substance, which is used for the specific purpose of lubrication. |
| Lubrication | Apparatus, arrangements or methods for introducing or applying a thin layer of a discrete lubricant between two or more relatively-moving adjacent solid surfaces of a device or apparatus, for the specific purpose of reducing |

| | |
|--|---|
| | friction, heat or wear between the adjacent surfaces. |
|--|---|

F16N 1/00

Constructional modifications of parts of machines or apparatus for the purpose of lubrication

Definition statement

This subclass/group covers:

Constructional modifications of parts of machines or apparatus for the purpose of lubrication that could not be covered by one of the above group corresponding to a specific application for lubrication (e.g. [B62J 31/00](#) : Lubrication of cycles). This group is seldom used.

F16N 3/00

Devices for supplying lubricant by manual action (draining equipment for liquid containers B65D)

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|--|----------------------|
| Draining equipment for liquid containers | B65D |
|--|----------------------|

F16N 5/00

Apparatus with hand-positioned nozzle supplied with lubricant under pressure (F16N3/00 takes precedence)

References relevant to classification in this group

This subclass/group does not cover:

| | |
|---|---------------------------|
| Devices for supplying lubricant by manual action (draining equipment for liquid containers) | F16N 3/00 |
|---|---------------------------|

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 B61F17/00)

Definition statement

This subclass/group covers:

Arrangements for supplying oil or unspecified lubricant from a stationary reservoir or the equivalent in or on the machine or member to be lubricated such as e.g. with gravity feed or drip lubrication, splash lubrication, dip lubrication, mist lubrication , with feed by pumping action of the member to be lubricated or of a shaft of the machine, centrifugal lubrication, with feed by pumping action of a vertical shaft of the machine, and central lubrication systems (the scope covered the by title of the corresponding group is not limited by these examples).

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|--|----------------------------|
| Axle-box lubrication for railway rolling-stock | B61F 17/00 |
|--|----------------------------|

F16N 7/08

controlled by means of the temperature of the member to be lubricated (thermostats G05D)

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|-------------|----------------------|
| Thermostats | G05D |
|-------------|----------------------|

F16N 7/14

the lubricant being conveyed from the reservoir by mechanical means (by pumping devices F16N7/36, F16N7/38; adaptations for lubrication of machines or engines in general, of internal-combustion engines F01M)

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|---|---|
| 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)

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|--------------------------|----------------------|
| Scoop devices in general | F04D |
|--------------------------|----------------------|

F16N 7/26

Splash lubrication (mist lubrication F16N7/32)

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|------------------|---------------------------|
| Mist lubrication | F16N 7/32 |
|------------------|---------------------------|

F16N 7/30

the oil being fed or carried along by another fluid (in internal-combustion engines F02F)

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|---------------------------------|----------------------|
| In internal- combustion engines | F02F |
|---------------------------------|----------------------|

F16N 7/32

Mist lubrication (splash lubrication F16N7/26)

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|--------------------|---------------------------|
| Splash lubrication | F16N 7/26 |
|--------------------|---------------------------|

F16N 7/34

Atomising devices for oil (atomising devices in general B05B)

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|------------------------------|----------------------|
| Atomising devices in general | B05B |
|------------------------------|----------------------|

F16N 9/00

Arrangements for supplying oil or unspecified lubricant from a moving reservoir or the equivalent (also usable with a stationary reservoir F16N7/00)

Definition statement

This subclass/group covers:

Arrangements for supplying oil or unspecified lubricant from a moving reservoir or the equivalent such as e.g. a reservoir on or in a rotary member

and a reservoir on or in a reciprocating, rocking, or swinging member (the scope covered the by title of the corresponding group is not limited by these examples).

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|---|---------------------------|
| Also usable with a stationary reservoir | F16N 7/00 |
|---|---------------------------|

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

Definition statement

This subclass/group covers:

Arrangements for supplying grease from a stationary reservoir or the equivalent in or on the machine or member to be lubricated such as e.g. grease cups, hand-actuated grease cups, stauffer cups, spring-loaded devices, weight-loaded devices, or by pressure of another fluid (the scope covered the by title of the corresponding group is not limited by these examples).

F16N 11/08

with mechanical drive, other than directly by springs or weights (lubricating-pumps F16N13/00)

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|-------------------|----------------------------|
| Lubricating-pumps | F16N 13/00 |
|-------------------|----------------------------|

F16N 13/00

Lubricating-pumps (oil cans with pump F16N3/08; pumps for liquids in general F04)

Definition statement

This subclass/group covers:

Lubricating-pumps such as e.g. with a reciprocating piston, with an adjustable reciprocating pumps, an actuation of lubricating-pumps by hand or foot, a mechanical drive, or fluid drive, with relative movement of pump parts being produced by inertia of one of the parts or of a driving member, with a rotary pumps, or with distributing equipment (the scope covered the by title of the corresponding group is not limited by these examples).

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|------------------------------|---------------------------|
| Pumps for liquids in general | F04 |
| Oil cans with pump | F16N 3/08 |

F16N 13/02

with reciprocating piston (pumps with distributing equipment F16N13/22)

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|-----------------------------------|----------------------------|
| Pumps with distributing equipment | F16N 13/22 |
|-----------------------------------|----------------------------|

F16N 13/20

Rotary pumps (with distributing equipment F16N13/22)

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|--|----------------------------|
| Rotary pumps with distributing equipment | F16N 13/22 |
|--|----------------------------|

F16N 13/22

with distributing equipment (separate distributing equipment F16N25/00)

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|---------------------------------|----------------------------|
| 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 (F16N17/00 takes precedence; lubricating compositions, selection of particular substances as lubricants in general C10M; bearings with surfaces incorporating lubricant F16C33/04; lubrication specially adapted to machines or apparatus provided for in a single other class, see the relevant class for the machine or**

apparatus)

Definition statement

This subclass/group covers:

Lubrication with substances other than oil or grease such as e.g. with graphite or graphite-containing compositions or water (the scope covered the by title of the corresponding group is not limited by these examples).

References relevant to classification in this group

This subclass/group does not cover:

| | |
|---|----------------------------|
| Lubrication of machines or apparatus working under extreme conditions | F16N 17/00 |
|---|----------------------------|

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|---|----------------------------|
| Lubricating compositions, selection of particular substances as lubricants in general | C10M |
| Bearings with surfaces incorporating lubricant | F16C 33/04 |

F16N 15/04

with water (bearings working in water F16C)

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|---------------------------|----------------------|
| 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)

Definition statement

This subclass/group covers:

Lubrication of machines or apparatus working under extreme conditions such as e.g. at high temperature, at low temperature, or in vacuum or under reduced pressure (the scope covered the by title of the corresponding group is not limited by these examples).

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|--|----------------------|
| 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)

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|---|---|
| Lubrication 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)

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|---------------------------------------|----------------------|
| 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 H01J35/10)

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|---|----------------------------|
| Lubrication of evacuating pumps | F04 |
| Lubrication of rotary anodes of X-ray tubes | H01J 35/10 |

F16N 19/00

Lubricant containers for use in lubricators or lubrication systems

Definition statement

This subclass/group covers:

Lubricant containers for use in lubricators or lubrication systems, such as e.g. indicating oil level or maintaining oil level (the scope covered the by title of the corresponding group is not limited by these examples).

F16N 19/003

[N: Indicating oil level (measuring liquid level in general G01F)]

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|-----------------------------------|----------------------|
| Measuring liquid level in general | G01F |
|-----------------------------------|----------------------|

F16N 19/006

[N: Maintaining oil level (level control in general G05D9/00)]

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|--------------------------|---------------------------|
| Level control in general | G05D 9/00 |
|--------------------------|---------------------------|

F16N 21/00

Conduits; Junctions (in general F16L); Fittings for lubrication apertures

Definition statement

This subclass/group covers:

Conduits; junctions; fittings for lubrication apertures such as e.g. lubricating nipples, nozzles for connection of lubricating equipment to nipples Covering members for nipples, conduits or apertures (The scope covered the by title of the corresponding group is not limited by these examples).

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|----------------------|----------------------|
| Junctions in general | F16L |
|----------------------|----------------------|

F16N 23/00

Special adaptations of check valves (check valves in general F16K)

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|-------------------------|----------------------|
| Check valves in general | F16K |
|-------------------------|----------------------|

F16N 25/00

Distributing equipment [N: with or without proportioning devices]

Definition statement

This subclass/group covers:

Distributing equipment such as e.g. with reciprocating distributing slide valve

or with rotary distributing member (The scope covered the by title of the corresponding group is not limited by these examples).

F16N 25/04

with rotary distributing member (combined with oil pump
F16N13/22)

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|--|----------------------------|
| Distributing member combined with oil pump | F16N 13/22 |
|--|----------------------------|

F16N 27/00

Proportioning devices (liquid meters G01F)

Definition statement

This subclass/group covers:

Proportioning devices such as e.g. using restrictions or gating equipment (The scope covered the by title of the corresponding group is not limited by these examples).

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|---------------|----------------------|
| Liquid meters | G01F |
|---------------|----------------------|

F16N 27/02

Gating equipment (multiple-way valves F16K; metering cocks
G01F)

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|---------------------|----------------------|
| 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)

Definition statement

This subclass/group covers:

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 such as e.g. for influencing the supply of lubricant or enabling a warning to be given (The scope covered the by title of the corresponding group is not limited by these examples).

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|--|----------------------|
| Use of devices responsive to conditions in lubricating arrangements or systems in bearings | F16C |
|--|----------------------|

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)

Definition statement

This subclass/group covers:

Means for collecting, retaining, or draining-off lubricant in or on machines or apparatus, such as e.g. drain pans, drip trays, oil catchers, oil wipers (The scope covered the by title of the corresponding group is not limited by these examples).

References relevant to classification in this group

This subclass/group does not cover:

| | |
|--|----------------------|
| Oil separators for separating oil from exhaust steam | F22G |
|--|----------------------|

F16N 31/02

Oil catchers; Oil wipers (oil-scraping rings for pistons F16J9/20; [N: cleaning means for indicating or measuring dip members, e.g. dipstick wipers G01F23/045])

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|--|-----------------------------|
| 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

F16N 35/00

Storage of lubricants in engine-rooms or the like (storage containers B65)

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|--------------------|-----|
| Storage containers | B65 |
|--------------------|-----|

F16N 37/00

Equipment for transferring lubricant from one container to another

F16N 39/00

Arrangements for conditioning of lubricants in the lubricating system (cleaning of lubricating oil, lubricating compositions

C10M)

Definition statement

This subclass/group covers:

Arrangements for conditioning of lubricants in the lubricating system such as e.g. by deaeration, by evaporating or purifying, by cooling , by heating , by filtration or by diluting, e.g. by addition of fuel (The scope covered the by title of the corresponding group is not limited by these examples).

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|---|----------------------|
| Cleaning of lubricating oil, lubricating compositions | C10M |
|---|----------------------|

F16N 39/002

[N: by deaeration (degasification of liquids B01D19/00)]

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|---------------------------|----------------------------|
| Degasification of liquids | B01D 19/00 |
|---------------------------|----------------------------|

F16N 39/005

[N: by evaporating or purifying (for heating or cooling of filters B01D35/18, e.g. comprising a vaporising unit B01D35/185)]

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|--|-----------------------------|
| For heating or cooling of filters | B01D 35/18 |
| For heating or cooling of filters, e.g. comprising a vaporising unit | B01D 35/185 |

F16N 39/02

by cooling (heat-exchangers in general F28)

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|----------------------------|-----|
| Heat-exchangers in general | F28 |
|----------------------------|-----|

F16N 39/04

by heating (heat-exchangers in general F28)

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|----------------------------|-----|
| Heat-exchangers in general | F28 |
|----------------------------|-----|

F16N 39/06

by filtration (filters in general B01D; magnetic separators B03C1/00; [N: centrifugal separators or filters B04B5/005])

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|---------------------|---------------------------|
| Filters in general | B01D |
| Magnetic separators | B03C 1/00 |

F16N 99/00

Subject matter not provided for in other groups of this subclass