

## SECTION F — MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING

### F16 ENGINEERING ELEMENTS OR UNITS; GENERAL MEASURES FOR PRODUCING AND MAINTAINING EFFECTIVE FUNCTIONING OF MACHINES OR INSTALLATIONS; THERMAL INSULATION IN GENERAL

#### F16N LUBRICATING

##### Note(s) [2006.01]

Attention is drawn to the following places, which cover lubrication of specific apparatus or in particular processes:

|                             |   |
|-----------------------------|---|
| A01D 69/12.....             | Harvesters  |
| B21B 25/04.....             | Mandrels for metal tube rolling mills                           |
| B21B 27/06.....             | Rolls for metal rolling mills                                   |
| B21D 37/18.....             | Tools for machines for working metal without removing material  |
| B21J 3/00.....              | Forging or pressing   |
| B22D 11/07.....             | Moulds for continuous casting of metals                         |
| B23C 5/28.....              | Milling cutters   |
| B23D 59/02, B23D 59/04..... | Metal saws  |
| B23Q 11/10, B23Q 11/12..... | Machine tools   |
| B25D 17/26.....             | Portable power-driven percussive tools                          |
| B26B 19/40.....             | Hair-clippers or dry-shavers                                    |
| B27B 13/12.....             | Band saw blades for wood or the like                            |
| B60R 17/00.....             | Vehicles  |
| B61B 12/08.....             | Cable systems for railways                                      |
| B61C 17/08.....             | Railway locomotives   |
| B61F 17/00.....             | Axle-boxes of rail vehicles                                     |
| B61K 3/00.....              | Rail or wheel flanges of railways                               |
| B62D 55/092.....            | Endless-track units for vehicles                                |
| B62J 31/00.....             | Cycles  |
| B65G 45/02.....             | Conveyors   |
| B66B 7/12.....              | Ropes, cables or guides of elevators                            |
| D01H 7/20.....              | Spindles of machines for spinning or twisting threads or fibres |
| D04B 35/28.....             | Knitting machines   |
| D05B 71/00.....             | Sewing machines   |
| D05C 13/04.....             | Embroidering machines   |
| E01B 7/26.....              | Switches for railways   |
| E05B 17/08.....             | Locks   |
| E05D 11/02.....             | Hinges  |
| E21B 10/22.....             | Roller bits for earth drilling                                  |
| F01C 21/04.....             | Rotary-piston or oscillating-piston machines or engines         |
| F01D 25/18.....             | Non-positive-displacement machines                              |
| F01M.....                   | Machines or engines in general                                  |
| F02C 7/06.....              | Gas-turbine plants  |
| F02F 1/20.....              | Cylinders of combustion engines                                 |
| F04B 39/02.....             | Pumps for liquids   |
| F04C 29/02.....             | Rotary-piston or oscillating-piston pumps for liquids           |
| F04D 29/04.....             | Non-positive-displacement pumps                                 |
| F16C 1/24.....              | Flexible shafts   |
| F16C 33/10.....             | Sliding-contact bearings  |
| F16C 33/66.....             | Ball or roller bearings   |
| F16F 1/24.....              | Springs   |
| F16H 57/04.....             | Transmissions   |
| F41A 29/04.....             | Smallarms or ordnance   |
| G04B 31/08.....             | Clocks  |
| H01R 39/56.....             | Rotary current collectors, distributors or interrupters         |

##### Subclass index

MODIFICATIONS OF APPARATUS OR MACHINES TO ENSURE LUBRICATION.....1/00

## LUBRICATION DEVICES

|   |                               |
|---|-------------------------------|
| Stationary; mobile; manual.....   | 7/00, 11/00, 9/00, 3/00, 5/00 |
| Lubricating-pumps.....  | 13/00                         |
| Details: reservoirs; conduits; check valves.....                          | 19/00, 21/00, 23/00           |
| EQUIPMENT FOR DISTRIBUTION, PROPORTIONING, SAFETY, CONTROL, CLEANING..... | 23/00-33/00                   |
| HANDLING OF LUBRICANTS, STORAGE.....                                      | 33/00-39/00                   |
| SPECIAL LUBRICATION.....  | 15/00, 17/00                  |
| SUBJECT MATTER NOT PROVIDED FOR IN OTHER GROUPS OF THIS SUBCLASS.....     | 99/00                         |

**Lubrication devices or arrangements for oil or grease**

|             |   |              |   |
|-------------|---|--------------|---|
| <b>1/00</b> | <b>Constructional modifications of parts of machines or apparatus for the purpose of lubrication [1, 2006.01]</b>   | 7/38         | • with a separate pump; Central lubrication systems [1, 2006.01]  |
| <b>3/00</b> | <b>Devices for supplying lubricant by manual action [1, 2006.01]</b>  | 7/40         | • • in a closed circulation system [1, 2006.01]   |
| 3/02        | • delivering oil [1, 2006.01]   | <b>9/00</b>  | <b>Arrangements for supplying oil or unspecified lubricant from a moving reservoir or the equivalent (also usable with a stationary reservoir F16N 7/00) [1, 2006.01]</b>   |
| 3/04        | • • Oil cans; Oil syringes [1, 2006.01]   | 9/02         | • with reservoir on or in a rotary member [1, 2006.01]  |
| 3/06        | • • • delivering on squeezing [1, 2006.01]  | 9/04         | • with reservoir on or in a reciprocating, rocking, or swinging member [1, 2006.01]   |
| 3/08        | • • • incorporating a piston-pump [1, 2006.01]  | <b>11/00</b> | <b>Arrangements for supplying grease from a stationary reservoir or the equivalent in or on the machine or member to be lubricated; Grease cups [1, 2006.01]</b>  |
| 3/10        | • delivering grease [1, 2006.01]  | 11/02        | • Hand-actuated grease cups, e.g. Stauffer cups [1, 2006.01]  |
| 3/12        | • • Grease guns [1, 2006.01]  | 11/04        | • Spring-loaded devices [1, 2006.01]  |
| <b>5/00</b> | <b>Apparatus with hand-positioned nozzle supplied with lubricant under pressure (F16N 3/00 takes precedence) [1, 2006.01]</b>   | 11/06        | • Weight-loaded devices [1, 2006.01]  |
| 5/02        | • Nozzles or nozzle-valve arrangements therefor, e.g. high-pressure grease guns [1, 2006.01]  | 11/08        | • with mechanical drive, other than directly by springs or weights (lubricating-pumps F16N 13/00) [1, 2006.01]  |
| <b>7/00</b> | <b>Arrangements for supplying oil or unspecified lubricant from a stationary reservoir or the equivalent in or on the machine or member to be lubricated [1, 2006.01]</b> | 11/10        | • by pressure of another fluid [1, 2006.01]   |
| 7/02        | • with gravity feed or drip lubrication [1, 2006.01]  | 11/12        | • by centrifugal action [1, 2006.01]  |
| 7/04        | • • with oil flow promoted by vibration [1, 2006.01]  | <b>13/00</b> | <b>Lubricating-pumps (oil cans with pump F16N 3/08) [1, 2006.01]</b>  |
| 7/06        | • • Arrangements in which the droplets are visible [1, 2006.01]   | 13/02        | • with reciprocating piston (pumps with distributing equipment F16N 13/22) [1, 2006.01]   |
| 7/08        | • • controlled by means of the temperature of the member to be lubricated [1, 2006.01]  | 13/04        | • • Adjustable reciprocating pumps [1, 2006.01]   |
| 7/10        | • • incorporating manually-operated regulating means, e.g. spindles [1, 2006.01]  | 13/06        | • • Actuation of lubricating-pumps [1, 2006.01]   |
| 7/12        | • with feed by capillary action, e.g. by wicks [1, 2006.01]   | 13/08        | • • • by hand [1, 2006.01]  |
| 7/14        | • the lubricant being conveyed from the reservoir by mechanical means (by pumping devices F16N 7/36, F16N 7/38) [1, 2006.01]  | 13/10        | • • • with mechanical drive (F16N 13/18 takes precedence) [1, 2006.01]  |
| 7/16        | • • the oil being carried up by a lifting device [1, 2006.01]   | 13/12        | • • • • with ratchet [1, 2006.01]   |
| 7/18        | • • • with one or more feed members fixed on a shaft [1, 2006.01]   | 13/14        | • • • • with cam or wobble-plate on shaft parallel to the pump cylinder or cylinders [1, 2006.01]   |
| 7/20        | • • • with one or more members moving around the shaft to be lubricated [1, 2006.01]  | 13/16        | • • • with fluid drive [1, 2006.01]   |
| 7/22        | • • • • shaped as rings [1, 2006.01]  | 13/18        | • • • relative movement of pump parts being produced by inertia of one of the parts or of a driving member [1, 2006.01]   |
| 7/24        | • • • with discs, rollers, belts, or the like contacting the shaft to be lubricated [1, 2006.01]  | 13/20        | • Rotary pumps (with distributing equipment F16N 13/22) [1, 2006.01]  |
| 7/26        | • • Splash lubrication [1, 2006.01]   | 13/22        | • with distributing equipment [1, 2006.01]  |
| 7/28        | • • Dip lubrication [1, 2006.01]  | <b>15/00</b> | <b>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; lubrication specially adapted to machines or apparatus provided for in a single other class, see the relevant class for the machine or apparatus) [1, 2006.01]</b> |
| 7/30        | • the oil being fed or carried along by another fluid [1, 2006.01]  |              |   |
| 7/32        | • • Mist lubrication [1, 2006.01]   |              |   |
| 7/34        | • • • Atomising devices for oil [1, 2006.01]  |              |   |
| 7/36        | • with feed by pumping action of the member to be lubricated or of a shaft of the machine; Centrifugal lubrication [1, 2006.01]   |              |   |

- 15/02 • with graphite or graphite-containing compositions [1, 2006.01]
- 15/04 • with water [1, 2006.01]
- 17/00 Lubrication of machines or apparatus working under extreme conditions** (additives to lubricating oil or lubricating grease C10M) [1, 2006.01]
  - 17/02 • at high temperature [1, 2006.01]
  - 17/04 • at low temperature [1, 2006.01]
  - 17/06 • in vacuum or under reduced pressure (of rotary anodes of X-ray tubes H01J 35/10) [1, 2006.01]

#### Details of lubricators or lubrication systems

- 19/00 Lubricant containers for use in lubricators or lubrication systems** [1, 2006.01]
- 21/00 Conduits; Junctions; Fittings for lubrication apertures** [1, 2006.01]
  - 21/02 • Lubricating nipples [1, 2006.01]
  - 21/04 • Nozzles for connection of lubricating equipment to nipples [1, 2006.01]
  - 21/06 • Covering members for nipples, conduits, or apertures [1, 2006.01]
- 23/00 Special adaptations of check valves** [1, 2006.01]
- 25/00 Distributing equipment** (combined with oil pump F16N 13/22) [1, 2006.01]
  - 25/02 • with reciprocating distributing slide valve [1, 2006.01]
  - 25/04 • with rotary distributing member [1, 2006.01]
- 27/00 Proportioning devices** [1, 2006.01]
  - 27/02 • Gating equipment [1, 2006.01]

- 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** (constructions of apparatus outside the lubricating arrangements or systems, see the relevant classes) [1, 2006.01]
  - 29/02 • for influencing the supply of lubricant [1, 2006.01]
  - 29/04 • enabling a warning to be given; enabling moving parts to be stopped [1, 2006.01]
- 31/00 Means for collecting, retaining, or draining-off lubricant in or on machines or apparatus** [1, 2006.01]
  - 31/02 • Oil catchers; Oil wipers (oil-scraping rings for pistons F16J 9/20) [1, 2006.01]

- 33/00 Mechanical arrangements for cleaning lubricating equipment; Special racks or the like for use in draining lubricant from machine parts** [1, 2006.01]

#### Care of lubricants

- 35/00 Storage of lubricants in engine-rooms or the like** [1, 2006.01]
- 37/00 Equipment for transferring lubricant from one container to another** [1, 2006.01]
  - 37/02 • for filling grease guns [1, 2006.01]
- 39/00 Arrangements for conditioning of lubricants in the lubricating system** (cleaning of lubricating oil, lubricating compositions C10M) [1, 2006.01]
  - 39/02 • by cooling [1, 2006.01]
  - 39/04 • by heating [1, 2006.01]
  - 39/06 • by filtration [1, 2006.01]
  - 39/08 • by diluting, e.g. by addition of fuel [1, 2006.01]

- 99/00 Subject matter not provided for in other groups of this subclass** [2006.01]