

CLASS 384, BEARINGS**SECTION I - CLASS DEFINITION****GENERAL STATEMENT OF CLASS SUBJECT MATTER**

This class is the generic class for devices, known as bearings, designed for general use, where one element continuously bears the weight of another, either suspended therefrom, or imposed thereon, and wherein there is either linear motion (e.g., a cross head) rotary motion (e.g., of a shaft or axle), or oscillating movement, (e.g., a lever) between the two elements. The bearings may have either sliding, or rolling contact with the supported member.

The class includes (a) supports for bearings where such supports are specially formed to receive, and are placed in combination with, bearings, and when not limited to any classified art; (b) antifriction means, as balls, or rollers, designed to receive a rotating shaft, or to be used in connection with a pivoted, sliding, or rotary element; and (c) lubricating devices wherein any of the above bearings are modified for receiving and supplying lubricant.

This class including methods pertaining to bearings, when not otherwise provided for.

- (1) Note. Patents issued prior to 1950 have not in all instances been classified by their claimed disclosure so that placement of these older patents does not necessarily indicate lines of classification.
- (2) Note. Necessary but not particularly sufficient criteria for inclusion in this class are that the "bearing" (1) have at least two moving parts that slide or roll against one another and (2) should be intended to reduce friction between significantly more massive elements than the bearing itself.

SECTION II - LINES WITH OTHER CLASSES AND WITHIN THIS CLASS

Where the bearing forms but an element of a structure, and the claims are not limited to the bearing, or bearing support structure, see the appropriate art class.

Claimed compositions of matter even though particularly adapted for use as bearings, or composition, per se,

claimed either alone, or with other claims to a bearing element, are classified in the appropriate composition class and cross-referenced here. Also where a product is claimed as a stock material, that is, without sufficient structure in the claims to limit the product to bearing use, it is classified elsewhere.

Many objects, such as, auto wheels, conveyor rollers or etc., theoretically meet the criteria in set forth in the Class Definition, General Statement of the Class Subject Matter, in the (2) Note, under (1), but are nonetheless not bearings as commonly understood and as such are not classified in this class, see search class for placement.

SECTION III - REFERENCES TO OTHER CLASSES**SEE OR SEARCH CLASS:**

- 16, Miscellaneous Hardware (e.g., Bushing, Carpet Fastener, Caster, Door Closer, Panel Hanger, Attachable or Adjunct Handle, Hinge, Window Sash Balance, etc.), subclasses 18+ for casters, 45+ for wheels and wheel attaching devices, 86.1+ for door, or gate hangers and 128+ for hinges.
- 29, Metal Working, subclasses 898+ for processes of making bearings.
- 75, Specialized Metallurgical Processes, Compositions for Use Therein, Consolidated Metal Powder Compositions, and Loose Metal Particulate Mixtures, subclasses 122+ for alloys.
- 82, Turning, subclass 30 for bearing used in connection with lathe head stocks.
- 84, Music, subclass 228 for pedal bearings.
- 104, Railways, subclass 46 for turntable bearings.
- 105, Railway Rolling Stock, subclass 79 for inside drive boses for locomotives.
- 114, Ships, subclass 169 for post bearings.
- 152, Resilient Tires and Wheels, appropriate subclasses for wheels and bearings.
- 175, Boring or Penetrating the Earth, appropriate subclasses for apparatus which includes bearings, or guides.
- 184, Lubrication, for lubrication devices separable from, or not a part of, the bearing, or not including any modified structure of the bearing.
- 267, Spring Devices, subclasses 260+ for an end connection for a vehicle leaf spring in the form of a rotary bearing.
- 295, Railway Wheels and Axle, appropriate subclasses for wheels and bearings.

- 301, Land Vehicles: Wheels and Axles, appropriate subclasses for wheels and bearings.
- 324, Electricity: Measuring and Testing, subclass 155 and electric meter bearings.
- 368, Horology: Time Measuring Systems, or Devices, subclass 324 for bearings for clocks and watches.
- 400, Typewriting Machines, subclasses 354+ for guideway, or bearings for carriage and subclasses 441+ for bearings for type bar pivot support.
- 403, Joints and Connections, subclasses 52+ for articulated joints.
- 428, Stock Material or Miscellaneous Articles, for a product claimed as a stock material, that is, without sufficient structure in the claims to limit the product to bearing use.
- 464, Rotary Shaft, Gudgeons, Housing, and Flexible Couplings for Rotary Shafts, appropriate subclasses for shafting, or shaft casings.
- 508, Solid Antifriction Devices, Materials Therefor, Lubricant and Separant Compositions for Moving Solid Surfaces, and Miscellaneous Mineral Oil Compositions, for subject matter as explained in the class title.

SUBCLASSES

1 **VIBRATORY, (E.G., PIEZOELECTRIC, OR KINETIC BEARING):**

This subclass is indented under the class definition. Subject matter wherein vibration e.g., brought about by a piezoelectric effect, results in reduced friction, either through creation of a fluid film or otherwise; or where motion in one direction is used to reduce the friction coefficient in another direction.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 12, for fluid linear bearings.
100+, for fluid rotary bearings.

2 **NONJOINT, NONROTATING FULCRUM BEARING:**

This subclass is indented under the class definition. Subject matter wherein there is angular movement of the axis of a supported element with respect to a supporting element about a pivot point and where a ball or roller at the pivot point, if present, does not move.

(1) Note. "Flexural pivots" (flexible joints) is specifically excluded both from Class 384, since they are actually a form of flexible joint. Where there is any indication that a device function as a flexible joint, it is classified in Class 403 subclass 291.

(2) Note. This subclass does not include "pivot pin" type bearings, where there is rotation about the axis of a shaft. Such a bearing is considered a rotary bearing, even if it rotates through only a small fraction of a circle.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 154+, for shaft-type pivots for limited rotary movement.
203+, and 206+, for self-aligning ball and socket.

SEE OR SEARCH CLASS:

- 177, Weighing Scales, subclasses 246+, 253+ and 264 for a similar bearing in combination with a weigher.
403, Joints and Connections, subclasses 119+ for two members connected together by a joint which includes a pivot.

3 **Knife-edge fulcrum:**

This subclass is indented under subclass 2. Subject matter wherein the fulcrum is the edge of a wedge-shaped element.

4 **Edges up and down:**

This subclass is indented under subclass 3. Subject matter wherein there are plural edges, one of which points toward, and another of which points away, from the center of the earth.

5 **Edge up:**

This subclass is indented under subclass 3. Subject matter wherein an edge points away from the center of the earth.

6 **Edge down:**

This subclass is indented under subclass 3. Subject matter wherein an edge points toward the center of the earth.

- 7 LINEAR BEARING:**
This subclass is indented under the class definition. Subject matter in which a supported element has sliding or line movement in a straight direction, on a supporting element.
- (1) Note. A race is the object upon which the raceway is formed. A raceway is a bearing contact surface, that is, the surface upon which another raceway slides or upon which a rolling element, such as a ball or roller, rolls.
- SEE OR SEARCH CLASS:
403, Joints and Connections, subclasses 52+ for two or more members connected together by a joint which includes a guide or slide.
- 8 With detection, nonbearing magnetic or hydraulic feature:**
This subclass is indented under subclass 7. Subject matter including means for inspection or detection of bearing element conditions, or magnetic features not functioning as a magnetic bearing, or means for hydraulic support or damping of a bearing element.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
9, for temperature, electrical or orthogonal feature.
12, for fluid linear bearings.
13+, for lubricating linear bearings.
- SEE OR SEARCH CLASS:
310, Electrical Generator or Motor Structure, subclass 90.5 for a magnetic bearing.
- 9 With temperature, electrical or orthogonal feature:**
This subclass is indented under subclass 7. Subject matter including means for temperature control, compensation, or insulation, or means for electrical functions, or means providing for linear movement in at least two directions at right angles to each other.
- 10 Tensioned or resilient race or roller member:**
This subclass is indented under subclass 7. Subject matter wherein means are provided to tension a bearing contact surface element, or wherein a race or rolling element is of a material that bounces or springs back to shape.
- 11 For crosshead:**
This subclass is indented under subclass 7. Subject matter wherein the bearing is for joining a piston rod to a connecting rod.
- 12 Fluid bearing:**
This subclass is indented under subclass 7. Subject matter wherein fluid under pressure is used to support an element in whole or in part during relative rectilinear movement.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
13, for linear bearing lubrication.
100+, for rotary fluid bearings.
- 13 Lubricating:**
This subclass is indented under subclass 7. Subject matter having means in the bearing for allowing lubricant to reach a bearing surface and means for lubricating the bearing.
- SEE OR SEARCH CLASS:
184, Lubrication, subclass 5 and 100, for slide bearing lubricators and subclasses 24+ for piston rod lubricators.
- 14 Bearing for valve stem:**
This subclass is indented under subclass 13. Subject matter wherein the bearing supports a valve stem.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
28, for a valve stem bearing.
29, for a cylindrical outer race.
- 15 Combined with seal or guard:**
This subclass is indented under subclass 7. Subject matter including means for shielding the exposed parts of the bearing or for preventing matter from entering into, passing through, or escaping therefrom.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 130+, for seals for plain rotary bearings and especially subclass 137 for scrapers.
 477+, for seals for radial antifriction bearings.
 607+, for seals for thrust antifriction bearing.

SEE OR SEARCH CLASS:

- 160, Flexible or Portable Closure, Partition, or Panel, appropriate subclasses for guides or seals, per se, of the flexible partition type.
 277, Seal for a Joint or Juncture, for a generic sealing means or process, subclasses 345+ for a seal between relatively movable parts (i.e., a dynamic seal).

16 Annular:

This subclass is indented under subclass 15. Subject matter wherein the seal is ring shaped.

17 For extension table:

This subclass is indented under subclass 7. Subject matter wherein a bearing is part of means to allow the area of a table surface to be increased.

SEE OR SEARCH CLASS:

- 108, Horizontally Supported Planar Surfaces, subclasses 65+ for guides in a coplanar extension surface extension table.

18 Ball bearing for drawer:

This subclass is indented under subclass 7. Subject matter wherein a ball bearing is designed to support a drawer.

SEE OR SEARCH CLASS:

- 312, Supports: Cabinet Structure, subclasses 334.1+ for similar antifriction guides in combination with or involving particulars of relation with a cabinet and a horizontally slidable component.

19 Roller bearing for drawer:

This subclass is indented under subclass 7. Subject matter wherein a roller bearing is designed to support a drawer.

SEE OR SEARCH CLASS:

- 312, Supports: Cabinet Structure, subclasses 334.1+, 349 and 350 for guides with antifriction bearings in combination with or involving particulars or relation with a cabinet and a horizontally slidable component.

20 Plain bearing for drawer:

This subclass is indented under subclass 7. Subject matter wherein a bearing having sliding friction contact is designed to support drawers for sliding movement.

SEE OR SEARCH CLASS:

- 312, Supports: Cabinet Structure, subclass 312, 330.1+, 349, and 350 for guides or slides combined with structure of a cabinet and a rectilinearly movable component thereof, or involving particulars of relationship with a cabinet or its movable components.

21 Stop, detent, or lock:

This subclass is indented under subclass 20. Subject matter wherein means are specified to limit relative movement of bearing races.

22 Anchoring or aligning means:

This subclass is indented under subclass 20. Subject matter wherein means are specified to attach the bearing to a drawer or cabinet structure, or to correctly position the bearing, drawer and cabinet with respect to one another.

- (1) Note. The positioning may be done automatically, as for example, by a resilient element.

23 Specified race structure or material:

This subclass is indented under subclass 20. Subject matter having particularly described race shape or material of a race.

24 Having relatively movable parts for lateral insertion and retention of shaft:

This subclass is indented under subclass 7. Subject matter in which the supporting element comprises relatively movable parts, said parts in one relative position permitting the supported element to be moved into supported position in a direction transverse to the direc-

- tion sliding or line movement, and relatively movable parts movable, to a second relative position to prevent movement of the supported element in a direction transverse to the direction of sliding or line movement, without interfering with said sliding or line movement.
- 25 Combined plain and antifriction:**
This subclass is indented under subclass 7. Subject matter where bearing support is provided partly by a sliding friction bearing and partly by a separate rolling friction bearing.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
49, for combined linear ball and roller antifriction bearings.
- 26 Plain bearings:**
This subclass is indented under subclass 7. Subject matter wherein the sliding or line movement is of friction type.
- SEE OR SEARCH CLASS:
187, Elevator, Industrial Lift Truck, or Stationary Lift for Vehicle, subclasses 406+ and 409+ for a guiding device for an elevator car.
- 27 For flush tank:**
This subclass is indented under subclass 26. Subject matter wherein the bearing is for a toilet flush tank valve.
- SEE OR SEARCH CLASS:
4, Baths, Closets, Sinks, and Spittoons, subclasses 397+ for a float type flush tank discharge valve having a seating guide.
- 28 For valve stem:**
This subclass is indented under subclass 26. Subject matter wherein the bearing is for a valve stem shaft.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
14, for a valve stem bearing with lubricating means.
- 29 Cylindrical outer race:**
This subclass is indented under subclass 26. Subject matter in which the supported element is guided in its sliding or line movement in a cylindrical bore means which constitutes the outer member.
- (1) Note. Where the guiding action is secondary, as in a piston, see the appropriate art class.
- (2) Note. Borehole or well casing contacting structure is classified in Class 175 subclass 325 even though specific wear surface structure is claimed.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
14, and 28, for bearings used with valve stems.
- SEE OR SEARCH CLASS:
166, Wells, subclasses 241.1+ for centering or friction drag means for well devices, the primary purpose of which is to center the device while stationary or to act as a relatively stationary point of reference to enable manipulation of a well device.
- 175, Boring or Penetrating the Earth, subclasses 325.1+ for bore wall engaging means.
- 30 For die set or stamping mill shaft:**
This subclass is indented under subclass 29. Subject matter wherein the bearing is for guiding means such as a die set, stamp mill, battery stamp, or vulcanizing press.
- 31 For hand-held drill shaft:**
This subclass is indented under subclass 29. Subject matter wherein the bearing is to support the shaft of a hand-held drill.
- (1) Note. See subclass 24 for above ground bearings with laterally moving segments which may guide the shaft of a well drill.
- (2) Note. See note to subclass 29 for line between this class and Class 175, "Boring or Penetrating the Earth".
- 32 For piston rod:**
This subclass is indented under subclass 29. Subject matter where the bearing is for a piston rod shaft.

- 34 For seat:**
This subclass is indented under subclass 26. Subject matter wherein the bearing is used for adjusting a seat for linear translation, generally an auto vehicle seat.
- 35 More than two telescoping members:**
This subclass is indented under subclass 26. Subject matter wherein at least a third bearing race moves relative to two other relatively longitudinally translating races.
- 36 For structural installation:**
This subclass is indented under subclass 26. Subject matter wherein the bearing is used for permitting small relative movement for large structures, such as bridge components.
- 37 Resilient supporting member:**
This subclass is indented under subclass 26. Subject matter having a resilient element for supporting the bearing.
- (1) Note. The resilient supporting member does not include the bearing contact surface, i.e., the race.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
10, for a linear resilient race.
- 38 Self-aligning:**
This subclass is indented under subclass 26. Subject matter having means for automatically adjusting a bearing surface orientation for optimum efficiency.
- (1) Note. Self-aligning linear bearings which employ resilient material for self-alignment feature are found in subclass 37.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
37, for resilient supporting member.
- 39 Gib:**
This subclass is indented under subclass 26. Subject matter comprising an element which is adjustable for keeping a linear bearing race correctly aligned.
- (1) Note. The gib may also include adjustment means.
- 40 With adjustment means:**
This subclass is indented under subclass 26. Subject matter including means to move the bearing or structure supporting the bearing.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
39, for adjustment means and a gib.
- 41 Assembling means:**
This subclass is indented under subclass 26. Subject matter wherein a bearing and/or its related support structure comprise structure for allowing assembly.
- 42 Specified pad, liner, wear plate or race structure; bearing material:**
This subclass is indented under subclass 26. Subject matter having a particularly recited race or bearing material of a bearing race.
- (1) Note. A pad, liner, wear plate are more specific means for objects functioning as races.
- 43 Recirculating:**
This subclass is indented under subclass 7. Subject matter wherein roller or ball antifriction elements circulate within an endless race track, e.g., raceway, part of the time in a loaded, and part of the time in an unloaded state.
- (1) Note. The track usually has one loaded straightway, the one unloaded straightway which are parallel, and circular endways connecting the straightaways.
- (2) Note. A race is the object upon which the raceway is formed. A raceway is a bearing contact surface, that is, the surface upon which the other raceway slides or on which a rolling element, such as a ball or roller, rolls.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
415, for recirculating antifriction bearing for a rotary shaft.

- 44 Roller:**
This subclass is indented under subclass 432. Subject matter wherein the antifriction elements are rollers e.g., cylindrical, tapered, barrel-shaped, needle-shaped, etc.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
565, for roller structure.
- 45 No cylindrical race:**
This subclass is indented under subclass 43. Subject matter wherein no race is cylindrical.
- (1) Note. A single longitudinal groove in an otherwise cylindrical race shall not be enough to qualify subject matter for this subclass.
- (2) Note. The cylindrical member is usually a shaft, and the groove is generally a form of anti-rotation key.
- 46 Roller bearing for extension cylinder:**
This subclass is indented under subclass 7. Subject matter comprising a pulley-type roller bearing for a relatively long shaft such as that employed in railroad switch pull-shafts, or pull-shafts for oil well stripper pumps.
- 47 Alternating roller; or antifriction bearing for auto seat:**
This subclass is indented under subclass 7. Subject matter wherein the bearing comprises (1) rollers which alternate in the orientation of their axis of rotation; or (2) a ball or roller bearing for linear adjustment of a automobile type seat.
- SEE OR SEARCH CLASS:
296, Land Vehicles: Bodies and Tops subclasses 65.01+ auto seat or other vehicle structure and bearings.
- 48 Combined ball and roller bearings:**
This subclass is indented under subclass 7. Subject matter wherein both ball and roller bearings are used separately but in the same bearing assembly.
- (1) Note. This subclass does not include bearings where one type of bearing facilitates movement of another type of bearing of which it is a part, as for example, when a roller bearing is journaled on a shaft via ball bearings. Such bearings would be classified as roller bearings.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
50, for a roller bearing journaled on a shaft via ball bearings.
- 49 Ball bearing:**
This subclass is indented under subclass 7. Subject matter wherein the linear antifriction element is a ball.
- (1) Note. Roller antifriction elements in a linear antifriction bearing often have their own radial bearing systems, which may include ball bearings, but because the linear antifriction element is a roller, these devices are classified in subclass 50 below, and not in this subclass.
- (2) Note. Where different embodiments use balls in one embodiment and rollers in another, they are included here.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
48, for linear ball and roller antifriction bearings.
- 50 Roller bearing:**
This subclass is indented under subclass 7. Subject matter comprising a roller antifriction element which has a particular shape e.g., cylindrical, tapered, barrel, needle, etc.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
548, for roller bearing for a rotary bearing.
- 51 Cage configuration:**
This subclass is indented under subclass 50. Subject matter comprising specified cage structure.
- 52 Cylindrical inner or outer track:**
This subclass is indented under subclass 50. Subject matter wherein an inner race is a shaft or an outer race is a cylindrical bore, or both.

53 Location or plural roller sets; more than two telescoping members:

This subclass is indented under subclass 50. Subject matter wherein: (a) spatial relationship of more than two linear sets of rollers in specified; or (b) three or more sets of races are nested now within the other, each movable relative to the other two.

54 Resilient member:

This subclass is indented under subclass 50. Subject matter wherein a resilient element is used in a bearing or support.

- (1) Note. The resilient element need not be a support element it may also be a race, cage, or rolling element.

55 Raceway configuration:

This subclass is indented under subclass 50. Subject matter wherein the shape of the raceway surface is specified and is not a flat surface, unless the precise degree of flatness is indicated.

56 Nonaxle-supported roller structure:

This subclass is indented under subclass 50. Subject matter wherein roller structure is specified, other than cases wherein a roller is journaled on a shaft.

SEE OR SEARCH THIS CLASS, SUBCLASS:
58, for roller-on-shaft structure.

57 Adjustment or self-alignment means:

This subclass is indented under subclass 50. Subject matter having means to change the position of the bearing.

- (1) Note. The change of position may be automatic, e.g., self-aligning.

58 Roller-on-axle bearing:

This subclass is indented under subclass 50. Subject matter wherein structure is specified of a roller that rotates about a shaft.

SEE OR SEARCH THIS CLASS, SUBCLASS:
56, for freely-rotating roller structure.

59 Assembling means:

This subclass is indented under subclass 50. Subject matter wherein a bearing is designed to facilitate assembly either of the bearing itself or of the bearing on its support.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 191.3, for assembling railway car journals.
244, for means to assemble or disassemble a bearing and its support.
724+, for means to assemble or disassemble a bearing.

SEE OR SEARCH CLASS:

- 29, Metal Working, subclasses 898+ and particularly subclasses 898.06+, 898.07 and 898.08 for process of manufacturing bearings.

91 ROTARY BEARING:

This subclass is indented under the class definition. Subject matter wherein the relative motion between the two elements includes a rotary component.

- (1) Note. This and indented subclasses include subcombination of bearings not otherwise classified.

92 Roller drill bit type:

This subclass is indented under subclass 91. Subject matter for specified bearing structure for a rotary bit in which a cutter element, or carrier for a fixed cutter is rotatably mounted thereon so that the cutter element, or carrier may roll, or tend to roll on a surface of a borehole as the bit is rotated.

- (1) Note. Patents have been classified in this and indented subclasses which claim a portion of a bit which supports the specified bearing, or a specified bearing disclosed for a roller drill bit.

- (2) Note. A drill bit with details of the bit is in Class 175.

SEE OR SEARCH CLASS:

- 175, Boring or Penetrating the Earth, subclasses 227+ for storage means for bit lubricant carried by bit, or shaft and subclasses 371+ for a bit earth cutter

having details of the bit and see search note for Class line.

93 Lubricating detail:

This subclass is indented under subclass 92. Subject matter having specified structure, or details of a bearing lubrication system.

- (1) Note. This subclass is limited to liquid, or grease type lubrication systems.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

95, for a solid lubricant in, or on a bearing surface.

94 Seal detail:

This subclass is indented under subclass 92. Subject matter wherein a bearing seal has specified details such as shape, or material.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

130, for a plain bearing with a specified seal.

95 Inserts or bearing surface detail:

This subclass is indented under subclass 92. Subject matter in which a bearing surface is modified (a) to receive a different material in a portion of the surface, (b) to receive thin strips (c) by special treatment to improve its antifric-tion, or wear resisting properties, or (d) by specified material therefor.

96 Roller cone retaining means:

This subclass is indented under subclass 92. Subject matter including means to hold a roller cone on its supporting shaft.

97 Water lubricated propeller shaft or well shaft type:

This subclass is indented under subclass 91. Subject matter for supporting either a propeller shaft, or a well pump shaft and is lubricated by water.

- (1) Note. Patents have been classified in this and indented subclasses which claim a shaft and specified bearing, or a specified bearing disclosed for shaft lubricated by water.

98 With elongated strips or staves:

This subclass is indented under subclass 97. Subject matter including discreet axially, narrow and long elements placed next to each other to form the bearing surface.

99 Hydraulic or pneumatic bearing support:

This subclass is indented under subclass 91. Subject matter wherein the bearing contact surface, or a portion thereof is movable mounted and is acted upon and supported by a hydraulic, or pneumatic system.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

100+, for a fluid bearing.

100 Fluid bearing:

This subclass is indented under subclass 91. Subject matter wherein fluid pressure is used to support an element wholly, or partially, balance the bearing, or resist the vertical, or horizontal thrust of a rotary element by interposing a layer that in operation eliminates contact between relatively rotating elements.

- (1) Note. Fluid (i.e., liquid, or gas) support and lubrication both involve interposing a fluid between relatively moving members. In general, the difference between them is that lubrication merely minimizes contact between the members, whereas fluid support eliminates it altogether via a thicker layer of fluid. Almost all gas bearings, or hydrodynamic, or hydrostatic bearings, involve fluid support

- (2) Note. If relatively moving elements can either rotate, or slide they are in these subclasses.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

322, for lubricating a bearing.

SEE OR SEARCH CLASS:

100, Presses, subclass 170 for roll type presses having a yieldable mounted roll and in which the yield force is transmitted by fluid pressure.

384, Bearings, subclass 12 for a linear fluid bearing.

- 101 With antifriction bearing:**
This subclass is indented under subclass 100. Subject matter including an antifriction bearing.
- (1) Note. The plain and the antifriction bearings are used either simultaneously, or alternatively.
- 102 Backup:**
This subclass is indented under subclass 101. Subject matter wherein the antifriction bearing functions as a backup bearing during fluid bearing breakdown, during start-up, or low, or reversed speeds.
- 103 Flexible member:**
This subclass is indented under subclass 100. Subject matter having a pliant element which is between relatively moveable bearing parts to form areas for the fluid.
- (1) Note. There are usually plural flexible members to form pad like areas.
- SEE OR SEARCH CLASS:
180, Motor Vehicles, subclass 124 and 125, for ground effect vehicle support platforms.
- 104 Plural ends fixed:**
This subclass is indented under subclass 103. Subject matter wherein the flexible element is connected to a relatively rotating bearing part at more than one end of the flexible element.
- 105 Thrust bearing:**
This subclass is indented under subclass 103. Subject matter designed for loads imposed in the direction of the axis rotation.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
420, for thrust bearings, and see search note.
- 106 Auxiliary resilient support:**
This subclass is indented under subclass 103. Subject matter wherein the flexible element is supported by separate resilient elements.
- 107 Radial and thrust:**
This subclass is indented under subclass 100. Subject matter designed for loads imposed both in the direction of the axis of rotation and normal to the axis of rotation.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
101, for a fluid bearing and an antifriction bearing.
228, for plain thrust and radial bearing.
- 108 Spherical:**
This subclass is indented under subclass 107. Subject matter wherein a relatively rotating element has at least a portion of the bearing surface concaved, or ball shaped.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
206+, for ball and socket plain bearing.
- 109 Gas bearing:**
This subclass is indented under subclass 108. Subject matter wherein the fluid is a gas.
- 110 Conical:**
This subclass is indented under subclass 107. Subject matter wherein a relatively rotating element has a cone shaped bearing surface.
- 111 Outer recess forming fluid pad:**
This subclass is indented under subclass 107. Subject matter wherein the outer bearing has a nonannular cavity of significant axial and circumferential extent for receiving fluid.
- (1) Note. There can be plural pads in a bearing.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
118, for radial outer recess forming fluid pad.
- 112 Grooved thrust bearing surface:**
This subclass is indented under subclass 107. Subject matter wherein the thrust bearing surface has a narrow furrow, or hollow cut for receiving the fluid.

- 113 Central member recess:**
This subclass is indented under subclass 107. Subject matter wherein an inner relatively rotating element has a groove, or passage for receiving the fluid.
- (1) Note. The groove, or passage may be located in the thrust bearing portion, in the radial bearing portion, or in both.
- (2) Note. There may be plural grooves, or passages in the bearing.
- 114 Radial:**
This subclass is indented under subclass 100. Subject matter designed for loads imposed only normal to the axis of rotation.
- 115 Shaft recess:**
This subclass is indented under subclass 114. Subject matter wherein an inner relatively rotating element has a groove, or passage for receiving the fluid.
- (1) Note. There may be plural grooves, or passages in the shaft.
- 116 Half-circular or less outer member:**
This subclass is indented under subclass 114. Subject matter wherein the outer bearing structure is semicircular, or less than 180 in extent.
- 117 Pivoted fluid pad:**
This subclass is indented under subclass 114. Subject matter wherein the bearing has a cavity in its surface for receiving the fluid and also has a rocking, or tilting movement.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
122, for a thrust bearing having a pivoted fluid pad.
309, for a load distributing pivoted pad and see search notes.
- 118 Outer recess forming fluid pad:**
This subclass is indented under subclass 114. Subject matter wherein the outer bearing has a nonannular cavity of significant axial and circumferential extent for receiving the fluid.
- (1) Note. There can be plural pads in a bearing.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
111, for an outer recess forming fluid pad for a radial and thrust bearing.
- 119 Resilient mounting member or seal:**
This subclass is indented under subclass 114. Subject matter having a material that bounces, or springs back to shape and takes at least part of the weight of supporting the bearing surface and permits relative movement, or vibration thereof with respect to a support and/or means for preventing matter from entering into, passing through, or escaping from the bearing.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
124, for a thrust fluid bearing resilient mounting member, or seal.
130+, for a bearing with a seal.
215+, for a resilient mounting member for a plain bearing.
- 120 Circumferenti groove in outer member:**
This subclass is indented under subclass 114. Subject matter wherein the bearing surface of an outer relatively rotating element has a narrow furrow, or hollow cut that is around its periphery for receiving the fluid.
- 121 Thrust:**
This subclass is indented under subclass 100. Subject matter designed for loads imposed in the direction of the axis of rotation.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
420+, for thrust bearing and see search notes.
- 122 Pivoted fluid pad:**
This subclass is indented under subclass 121. Subject matter wherein the bearing has a cavity in its surface for receiving the fluid and also has a rocking, or tilting movement.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
117, for a radial bearing having a pivoted fluid pad.
309+, for a load distributing pivoted pad and see search notes.

123 Grooved bearing surface:

This subclass is indented under subclass 121. Subject matter wherein the bearing surface has a narrow furrow, or hollow cut for passage of the fluid.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

112, for a fluid radial and thrust bearing wherein the thrust bearing is grooved.

124 Resilient mounting member or seal:

This subclass is indented under subclass 121. Subject matter having a material that bounces, or springs back into shape and takes at least part of the weight of supporting the bearing surface and permits relative movement, or vibration thereof with respect to a support and/or means for preventing matter from entering into, passing through, or escaping from the bearing.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

119, for a radial fluid bearing resilient mounting member, or seal.

130+, for a bearing with a seal.

215+, for a resilient mounting member for a plain bearing.

125 Resilient bearing surfaces:

This subclass is indented under subclass 91. Subject matter wherein the bearing contact surface is a material that bounces, or springs back to shape.

126 Plural bearing, one plain and one antifriction:

This subclass is indented under subclass 91. Subject matter including antifriction bearing.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

101+, for a fluid bearing and an antifriction bearing.

194, for a self-adjusting thrust and radial plain bearing.

228, for a thrust and radial plain bearing.

127 Roller:

This subclass is indented under subclass 126. Subject matter wherein the antifriction bearing includes an element that rolls during use.

128 Tapered roller:

This subclass is indented under subclass 127. Subject matter wherein the element has a gradual decrease in width.

129 Plain bearing:

This subclass is indented under subclass 91. Subject matter having sliding, or line contact with the support element, or with the rotary, or oscillating shaft.

SEE OR SEARCH CLASS:

74, Machine Element or Mechanism, subclasses 111+ for a pivotal, or oscillating movement of a lever.

130 With specified seal:

This subclass is indented under subclass 129. Subject matter including means for preventing matter from entering into, passing through, or escaping from the bearing.

(1) Note. The bearing and seal can be integral e.g., bearing constructed to act as a seal or vice versa or the bearing modified to receive, or otherwise cooperate with a seal.

(2) Note. A broadly recited seal, e.g., seal, bearing seal, etc., which recites no structure is placed below in the schedule.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

100+, for a fluid bearing which includes seals.

322+, for lubricating which include a broadly recited seal.

SEE OR SEARCH CLASS:

277, Seal for a Joint or Juncture, for a generic sealing means or process, subclasses 345+ for a seal between relatively movable parts (i.e., a dynamic seal).

131 Fluid actuated:

This subclass is indented under subclass 130. Subject matter wherein the seal is moved by a fluid.

132 Fluid barrier:

This subclass is indented under subclass 130. Subject matter wherein the seal comprises a sealing barrier of liquid, of gas, or of a mixture of both.

- (1) Note. These subclasses includes centrifugal means to pump a sealing fluid.

133 Magnetic fluid:

This subclass is indented under subclass 132. Subject matter wherein the sealing barrier is a liquid which contains magnetic properties.

134 Gas:

This subclass is indented under subclass 132. Subject matter wherein the barrier fluid is a gas.

135 Centrifugal:

This subclass is indented under subclass 130. Subject matter wherein the seal is moved, or held in place by centrifugal force.

SEE OR SEARCH THIS CLASS, SUB-CLASS:
132+, for centrifugal means to pump a sealing fluid.

136 With wick:

This subclass is indented under subclass 135. Subject matter including a fibrous element which acts as a reservoir and/or a distributing means.

137 And scraper:

This subclass is indented under subclass 130. Subject matter having means to remove excess lubricant from the shaft and return it to the lubricant reservoir, or for removing material from the shaft about to enter the bearing from its outside.

138 Unitary bearing and seal:

This subclass is indented under subclass 130. Subject matter wherein the bearing and seal is one element.

139 Relatively rotatable radially contacting:

This subclass is indented under subclass 130. Subject matter wherein the seal comprises relatively rotatable elements presenting comple-

mentary sealing surfaces normal to, or at an oblique angle to the axis of rotation.

140 Flexible sealing member:

This subclass is indented under subclass 139. Subject matter where the relatively rotating radially contacting sealing element is made of flexible material.

141 Diaphragm:

This subclass is indented under subclass 140. Subject matter wherein the flexible seal is attached to one of the rotatable elements and to a part which is axially movable therewith.

142 Axially translatable member rotatable with shaft:

This subclass is indented under subclass 139. Subject matter wherein one of the relatively rotatable elements is axially movable and is mounted on a shaft for rotation therewith.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 149, for a radially contained seal with axially acting follower.

143 Plural seals:

This subclass is indented under subclass 139. Subject matter where there is more than one seal.

144 Labyrinth:

This subclass is indented under subclass 130. Subject matter wherein the seal has a succession of baffles which define a slight clearance to create a series of throttling zones to impede the passage of fluid.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 132+, for a fluid barrier seal.

145 Arcuate bearing surface:

This subclass is indented under subclass 130. Subject matter wherein the seal conforms to a bearing surface which has a shape of a sphere to permit angular, or lateral movement.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 206+, for a ball and socket which is self-adjusting.

- 146 Axially spaced lip:**
This subclass is indented under subclass 145. Subject matter wherein the seal includes a projecting rim extending axially of the major seat engaging part of the seal.
- 147 Lip seal:**
This subclass is indented under subclass 130. Subject matter wherein the seal includes a projecting rim for contacting a relatively moving element to be sealed, the rim extends axially of the center of the seal seat.
- 148 With radially acting bias means:**
This subclass is indented under subclass 147. Subject matter including means tending to urge the seal in a radial direction.
- 149 Radially contained seal with axially acting follower:**
This subclass is indented under subclass 130. Subject matter wherein the seal is in an assembly comprising a chamber and an element coaxial therewith, wherein the seal is within the chamber and an element exerts an axial thrust on the sealing causing it to be moved radially into a sealing engagement with the chamber and a shaft.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
142, for an axially translatable member rotatable with shaft.
- 150 Mechanically actuated:**
This subclass is indented under subclass 130. Subject matter wherein the seal is moved by mechanical means e.g., a nut, or separate resilient elements etc.
- 151 Resilient sealing surface:**
This subclass is indented under subclass 130. Subject matter wherein the seal is on the outer area of the bearing, or shaft and is made of a resilient material.
- 152 O-rings:**
This subclass is indented under subclass 151. Subject matter wherein the seal is in the shape of a round, or oval ring.
- 153 Elastomeric:**
This subclass is indented under subclass 151. Subject matter wherein the resilient material is an elastomer.
- 154 Rocking type bearing:**
This subclass is indented under subclass 129. Subject matter wherein the relatively rotating element has a limited and reciprocating rotary motion.
- SEE OR SEARCH CLASS:
384, Bearings, subclass 2 for a bearing of the pivot type.
- 155 Lubricated:**
This subclass is indented under subclass 154. Subject matter wherein the bearing includes lubricating material, or means for lubricating the bearing surface.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
322+, for lubricating of bearings.
- 156 Movable pivot axis:**
This subclass is indented under subclass 154. Subject matter wherein the axis of the bearing shifts its position in a cyclical manner during the reciprocating rotary motion.
- 157 For plow or colter disk:**
This subclass is indented under subclass 129. Subject matter having means for supporting the bearing which receives a hub, or rotary shaft of a plow, or colter disk.
- SEE OR SEARCH CLASS:
172, Earth Working, subclasses 518+, for rolling, or rotating earth working tools including bearings for disks, or colters and see search notes.
384, Bearings, subclass 460, for an anti-friction bearing mounting, for a disk plow.
- 158 Railway car journal:**
This subclass is indented under subclass 129. Subject matter wherein a radial bearing and or a housing, e.g., box, is designed specifically for railway car journal.

- SEE OR SEARCH THIS CLASS, SUB-CLASS:
459, for railway antifriction bearing.
- SEE OR SEARCH CLASS:
295, Railway Wheels and Axles, appropriate subclasses for car wheel and axle construction and wheel attaching devices.
- 158.1 With resilient mounting member:**
This subclass is indented under subclass 158. Subject matter having a material that bounces or springs back into shape and takes at least part of the weight of supporting the bearing and permits relative movement or vibration thereof with respect to a support.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
215+, for a resilient mounting member for a plain bearing and see search notes.
- 159 With guard or seal:**
This subclass is indented under subclass 158. Subject matter including means for preventing the escape of lubricant, preventing dust or other matter from entering the bearing or journal box.
- SEE OR SEARCH CLASS:
277, Seal for a Joint or Juncture, for a generic sealing means or process, subclass 356 for a dynamic seal for use in a journal box.
- 160 Lubricating:**
This subclass is indented under subclass 158. Subject matter having means in the bearing for allowing a lubricant to reach a journal bearing surface.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
322, for lubricating of plain bearings an see search notes.
- 161 For thrust bearing:**
This subclass is indented under subclass 160. Subject matter wherein the lubricating is for a bearing designed for loads imposed in the direction of the axis of rotation.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
368+, for a rotary plain thrust bearing with lubricating means.
- 162 For brass bearings:**
This subclass is indented under subclass 160. Subject matter wherein the journal bearing is made of brass which is modified by grooves, cresses, apertures or the like for conveying or distributing lubricating to the bearing surface.
- (1) Note. See subclass 191 for definition of "brass".
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
191+, for brasses bearings.
- 163 Reservoir fed:**
This subclass is indented under subclass 162. Subject matter having means to hold the lubricant which is fed to the bearing surface.
- 164 Capillary:**
This subclass is indented under subclass 163. Subject matter wherein a capillary means is used to convey the lubricant to the bearing..
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
379, for lubricant fed by capillary means to plain bearings.
- 165 With lower reservoir:**
This subclass is indented under subclass 160. Subject matter having means to hold the lubricant wherein the holding means is below a journal axle.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
403, for a plane bearing with a lower reservoir for a horizontal shaft.
- 166 Journal operated feed:**
This subclass is indented under subclass 165. Subject matter having means operated by movement of an element of the car journal for feeding lubricant to the journal bearing.

- 167 Band:**
This subclass is indented under subclass 166. Subject matter wherein a belt shaped element rotated by a journal axle dips into the lubricant to feed the bearing.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
405+, for rotary shaft moving a band to lubricate a plain bearing.
- 168 Centrifugal:**
This subclass is indented under subclass 166. Subject matter wherein lubricant is impelled by centrifugal force.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
465, for centrifugal feed of a lubricant to an antifriction bearing.
- 169 Pump:**
This subclass is indented under subclass 166. Subject matter wherein the lubricant is fed by a pump.
- 170 Capillary:**
This subclass is indented under subclass 165. Subject matter wherein a capillary means is used to convey lubricant to the bearing.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
379, for capillary feed of a lubricant to a plain bearing and see search notes.
- 171 With wick biasing means:**
This subclass is indented under subclass 170. Subject matter having means to urge a capillary material against a journal axle.
- 172 Metal spring:**
This subclass is indented under subclass 171. Subject matter wherein the urging means is made of metal.
- SEE OR SEARCH CLASS:
184, Lubrication, subclass 45 for spring operated followers for force feed of a lubricator.
- 173 Coil spring:**
This subclass is indented under subclass 172. Subject matter wherein the metal spring is in the form of a coil.
- 174 Rubber:**
This subclass is indented under subclass 171. Subject matter wherein the urging means is made of rubber or similar composition.
- 175 With capillary material retainer:**
This subclass is indented under subclass 170. Subject matter including means to hold or support capillary material.
- 176 Integral with box:**
Subject matter under 175 wherein the retainer is integral with a journal box.
- 177 Including roller applicator:**
This subclass is indented under subclass 165. Subject matter having means for applying the lubricant which turns about an axis of rotation.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
407+, for roller or ball for applying a lubricant to a shaft and a plain bearing.
- 178 Yieldably supported:**
This subclass is indented under subclass 177. Subject matter wherein the roller is yieldably held by means of a spring, weight, fluid pressure, etc.
- 179 Coil spring:**
This subclass is indented under subclass 178. Subject matter wherein the yieldable means is in the form of a coil spring.
- 180 Spring under compression:**
This subclass is indented under subclass 179. Subject matter wherein the coil spring operates under pressure.
- 181 Wick structure:**
This subclass is indented under subclass 160. Subject matter wherein the means to feed lubricant is a fibrous element having a specified configuration.

- SEE OR SEARCH THIS CLASS, SUB-CLASS:
413, for wick structure to feed lubricant to a rotary shaft.
- SEE OR SEARCH CLASS:
502, Catalyst, Solid Sorbent, or Support Thereof: Product or Process of Making, subclass 400 for which composition.
- 182 Sheet metal journal box:**
This subclass is indented under subclass 158. Subject matter wherein the car journal box is formed of sheet metal in a particular configuration.
- 183 With journal retainer and guide:**
This subclass is indented under subclass 158. Subject matter including a retainer or guide element.
- (1) Note. The retainer or guide element are normally not in contact with the rotating axle.
- 184 Lateral guide:**
This subclass is indented under subclass 183. Subject matter wherein the guide element is mounted laterally in a horizontal sense to the side of the rotating journal axle.
- 185 Mounting feature:**
This subclass is indented under subclass 184. Subject matter wherein there is specified means for supporting the guide element.
- 186 Resilient:**
This subclass is indented under subclass 185. Subject matter wherein the support means is made of a resilient material.
- 187 Interior:**
This subclass is indented under subclass 158. Subject matter wherein a journal box is located on the inside of the wheel on the journal axle.
- 188 Includes thrust bearing:**
This subclass is indented under subclass 158. Subject matter having means to close and opening in a journal box.
- 189 Lid:**
This subclass is indented under subclass 158. Subject matter having means to close and opening in a journal box.
- SEE OR SEARCH CLASS:
49, Movable or Removable Closures, appropriate subclasses, for closures of the type provide for an see the search notes thereto in section IV for the loci of closures in other classes.
- 190 Mounted for swinging:**
This subclass is indented under subclass 189. Subject matter wherein the lid is mounted on the journal box by means of a hinge or other pivotal connection.
- 190.1 About pivot at right angle to plane of lid:**
This subclass is indented under subclass 190. Subject matter wherein the lid swings in a single plane on a pivot which is perpendicular to the plane of the lid.
- 190.2 Spring and cam biased open:**
This subclass is indented under subclass 190. Subject matter including a cam cooperating with an end of a spring mounted on the lid to hold the lid open.
- (1) Note. Frequently, the same mechanism also acts to hold the lid closed.
- 190.3 With roller:**
This subclass is indented under subclass 190.2. Subject matter including a roller cooperating with the cam.
- 190.4 Spring biased closed:**
This subclass is indented under subclass 190. Subject matter including a spring to close the lid.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
190.2+, for spring which can bias a lid open and/or closed.
- 190.5 Sliding:**
This subclass is indented under subclass 189. Subject matter wherein the lid is mounted for rectilinear movement in the plane of the lid.

190.6 Lid structure:

This subclass is indented under subclass 189. Subject matter having specified structure or form of the lid.

190.7 With latch:

This subclass is indented under subclass 190.6. Subject matter including means to fasten or latches the lid.

191 Brasses:

This subclass is indented under subclass 158. Subject matter wherein a journal bearing is located in the top of the journal box and bears against the upper surface of the rotating journal axle.

- (1) Note. The brasses is usually a half bearing.

191.1 Self aligning:

This subclass is indented under subclass 191. Subject matter wherein the bearing is formed with a curved surface which permits self alignment of the bearing

191.2 Bearing surface liner or insert:

This subclass is indented under subclass 191. Subject matter wherein the bearing is shaped to receive a surface liner to reduce friction or an insert for strengthening the bearing.

191.3 Assembling means:

This subclass is indented under subclass 191. Subject matter wherein a bearing is designed to facilitate assembly either of the bearing itself or of the bearing on its support.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 59, for assembling a roller bearing and see search notes.

191.4 Mounting structure:

This subclass is indented under subclass 191. Subject matter having means to hold the bearing to a journal box.

192 Self-adjusting or self-aligning:

This subclass is indented under subclass 129. Subject matter wherein relatively sliding surface in a bearing support structure permit continuous self movement of the bearing position

to compensate for shaft misalignment, or the bearing and shaft have limited motion, allowing for oscillation.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 247, for adjustment means for a bearing.
495+, for self-aligning means for an antifriction bearing.

SEE OR SEARCH CLASS:

- 210, Liquid Purification or Separation, subclass 64, 365+ and 367 for a centrifugal extractor gyratorially mounted on a shaft.
430, Joints and Connections, subclasses 53+ for plural members interconnected by plural articulation axes.
494, Imperforate Bowl: Centrifugal Separators, subclass 46 for a rotatable bowl having a bearing means adapted to enable the bowl to establish dynamic axis of rotation.

193 For vertical shaft:

This subclass is indented under subclass 192. Subject matter where the bearing receives force from a shaft whose axis is perpendicular to a horizontal plane.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 226+, for a bearing and a vertical shaft.
420+, for thrust bearings and see search notes.

194 With lower thrust and upper radial bearing:

This subclass is indented under subclass 193. Subject matter wherein the shaft carrying an element to be rotated is supported at its base by a thrust bearing and near the point of attachment of the element by a radial bearing.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 107+, for a fluid radial and thrust bearing.
126, for a plain bearing and an antifriction bearing.
228, for vertical shaft with a thrust and radial bearing.

- 195 Oscillatory suspension:**
This subclass is indented under subclass 193. Subject matter in which the shaft carrying an element to be rotated is pivotally supported above the body.
- 196 Resiliently centered:**
This subclass is indented under subclass 195. Subject matter having yielding means to assist in maintaining the shaft vertically centered.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
198, for an oscillating thrust bearing with resilient centering means for a shaft.
200, for a shaft balancing means with resilient centering means for the shaft.
215, for a resilient mounting member.
- 197 Oscillating thrust bearing:**
This subclass is indented under subclass 193. Subject matter wherein a thrust bearing is pivoted to permit the shaft to move from the vertical.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
420+, for thrust bearings and see search notes.
- 198 Resiliently centered:**
This subclass is indented under subclass 197. Subject matter having yielding means to assist in maintaining the shaft vertically centered.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
196, for an oscillating suspension means with resilient centering means for a shaft.
200, for a shaft balancing means with resilient centering means for the shaft.
215, for a resilient mounting member.
- 199 Shaft balancing means:**
This subclass is indented under subclass 193. Subject matter wherein the adjusting means is mounted on the shaft for the purpose of maintaining it vertically centered.
- 200 Resiliency on radial bearing:**
This subclass is indented under subclass 199. Subject matter wherein yielding means act on a bearing which receive radial force to assist in maintaining the shaft vertically centered.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
196, for an oscillating suspension means with resilient centering means for a shaft.
198, for an oscillating thrust bearing with resilient centering means for a shaft.
215, for a resilient mounting member.
- 201 Having body and spindle connector:**
This subclass is indented under subclass 193. Subject matter including a coupling means holding an element, e.g., bowl, to the shaft wherein the element is carried by the shaft.
- 202 Resilient:**
This subclass is indented under subclass 192. Subject matter wherein the bearing support includes a material that bounces, or springs back into shape.
- 203 Ball and socket:**
This subclass is indented under subclass 202. Subject matter wherein one element has portion in the shape of a sphere which is received in a recess of another element and there is a relatively sliding movement between them.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
206, for a ball and socket not resiliently mounted.
- 204 For electric motor:**
This subclass is indented under subclass 203. Subject matter wherein the self adjusting bearing is mounted in an electric motor housing.
- 205 Fixed pivot axis:**
This subclass is indented under subclass 192. Subject matter wherein the relatively sliding surfaces are part of support means for holding the bearing which turns about an axis that does not move.

- (1) Note. Shaft hangers having plain bearings mounted to pivot about a fixed axis are included in this subclass.
- 206 Ball and socket:**
This subclass is indented under subclass 192. Subject matter wherein one element has a portion in the shape of a sphere which is received in a recess of another element and there is a relatively sliding movement between them.
- (1) Note. The ball element has a bearing surface through its center.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
108, for a spherical fluid bearing.
145, for an arcuate bearing surface.
203, for a ball and socket resiliently supported.
- 207 Sheet metal socket:**
This subclass is indented under subclass 206. Subject matter in which at least a portion of the socket is formed from a metal whose thickness is thin.
- 208 Assembly:**
This subclass is indented under subclass 206. Subject matter in which the ball and/or socket are shaped so that they can be put together, or taken apart for repair, or use.
- 209 Separable ball retaining member:**
This subclass is indented under subclass 208. Subject matter wherein the socket includes a detachable element which serves to retain the ball in the socket after the bearing structure has been assembled.
- 210 Lock ring:**
This subclass is indented under subclass 209. Subject matter wherein the detachable element has a circular band shape for holding the assembly together.
- 211 Of ball:**
This subclass is indented under subclass 208. Subject matter wherein the ball is shaped, or designed to enable, or facilitate its assembly within the socket member.
- 212 Sectional:**
This subclass is indented under subclass 211. Subject matter in which the ball is assembled from discrete ball elements within the socket.
- 213 With lubricating means:**
This subclass is indented under subclass 206. Subject matter including means for allowing a lubricant to flow to a bearing surface, or means for applying a lubricant to a bearing surface.
- (1) Note. The bearing surface is that of a plain bearing and/or the sliding surface between a ball and a socket.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
322, for lubricating means for a radial bearing and see search notes for other search.
- 214 Having felt or wick:**
This subclass is indented under subclass 213. Subject matter including a fibrous element e.g., cord, shet, etc., which acts as a reservoir and/or a distributing means.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
413, for a wick and reservoir.
- SEE OR SEARCH CLASS:
252, Composition, subclass 425.5, for wick composition.
- 215 With resilient mounting member:**
This subclass is indented under subclass 129. Subject matter having a material that bounces, or springs back into shape and takes at least part of the weight of supporting the bearing and permits relative movement, or vibration thereof with respect to a support.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
124, for a resilient mounting member for a fluid thrust bearing.
- SEE OR SEARCH CLASS:
248, Supports, subclasses 560+ for a resilient support for an article of general use.

- 216 For connecting rod:**
This subclass is indented under subclass 215. Subject matter designed to be used on a connecting rod.
- 217 Lock type:**
This subclass is indented under subclass 215. Subject matter wherein part of the bearing contact surface is resiliently biased for securing a rotating shaft in its operating position.

SEE OR SEARCH THIS CLASS, SUBCLASS:
219, for a biased bearing surface segment.
- 218 Coil spring:**
This subclass is indented under subclass 215. Subject matter wherein the resilient element is in the form of a helix.

(1) Note. See subclass 216 for connecting rod bearing assemblies having resilient supporting elements, most of which are coil springs.

SEE OR SEARCH THIS CLASS, SUBCLASS:
216, for a connecting rod bearing assembly with coil springs.
- 219 Biased bearing surface segment:**
This subclass is indented under subclass 218. Subject matter wherein the coil spring acts to move a portion of the bearing contact surface with respect to the remainder of the bearing contact surface.
- 220 Nonmetallic:**
This subclass is indented under subclass 215. Subject matter wherein the resilient element is made of a material that lacks the characteristics of a metal.
- 221 Laminated:**
This subclass is indented under subclass 220. Subject matter wherein the resilient nonmetallic member is composed of a series of layers.
- 222 Cylindrical:**
This subclass is indented under subclass 220. Subject matter wherein the nonmetallic resilient element is in the shape of a circular body of uniform diameter, the extremities of which are equal parallel circles.
- 223 For thrust bearing:**
This subclass is indented under subclass 215. Subject matter wherein the resilient member is for supporting loads imposed in the direction of the axis of rotation.

SEE OR SEARCH THIS CLASS, SUBCLASS:
420+, for thrust bearings, and see search notes.
- 224 Pivoted pad:**
This subclass is indented under subclass 223. Subject matter wherein the resilient mounting element is for supporting a bearing on an element that turns about an axis.

(1) Note. The supporting, or holding means can be either formed partly, or wholly of resilient material.
- 225 Helical coil spring:**
This subclass is indented under subclass 223. Subject matter wherein the resilient means is a spring where several convolutions of a coil lie in different planes.
- 226 For vertical shaft:**
This subclass is indented under subclass 129. Subject matter wherein the bearing receives force from a shaft whose axis is perpendicular to a horizontal plane.

SEE OR SEARCH THIS CLASS, SUBCLASS:
193+, for a self-adjusting vertical shaft and a bearing.
- 227 Spinning spindle:**
This subclass is indented under subclass 226. Subject matter having means for supporting a spindle e.g., shafts for bobbins in a bolster, cylindrical races, or supports, of a spinning machine.

SEE OR SEARCH CLASS:
57, Textiles: Spinning, Twisting, and Twining, subclasses 129+ for receiving elements.

- 228 With thrust and radial bearing:**
This subclass is indented under subclass 227. Subject matter including both a thrust bearing and a radial bearing.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
126+, for plain bearing and an antifriction bearing.
194, for a self-adjusting vertical shaft with a lower thrust and upper radical bearing.
420, for trust bearings and see search notes.
- 229 Adjustable spindle:**
This subclass is indented under subclass 228. Subject matter having means for moving the spindle with respect to the bolster.
- 230 Laterally resilient:**
This subclass is indented under subclass 228. Subject matter wherein the spindle is yieldingly maintained in a vertical position by the use of a spring, rubber, etc.
- 231 Resilient sleeve:**
This subclass is indented under subclass 230. Subject matter wherein the means yieldingly maintaining the spindle in a vertical position is an element of cylindrical shape and the inner surface contacts the spindle.
- 232 Volute coil spring:**
This subclass is indented under subclass 230. Subject matter wherein the means yieldingly maintaining the spindle in a vertical position is a spring where several convolutions of a coil lie in the same plane.
- 233 Helical coil spring:**
This subclass is indented under subclass 230. Subject matter wherein the means yieldingly maintaining the spindle in a vertical position is a spring where several convolutions of a coil lie in different planes.
- 234 Fluid damping:**
This subclass is indented under subclass 230. Subject matter wherein a specified fluid means is used for damping the spindle lateral movement.
- 235 Rubber:**
This subclass is indented under subclass 230. Subject matter wherein the means yieldingly maintaining the spindle in a vertical position is an elastomeric element.
- 236 At fixed end:**
This subclass is indented under subclass 235. Subject matter wherein the elastomeric element is located at a fixed end of the spindle.
- 237 With interior dead shaft:**
This subclass is indented under subclass 228. Subject matter wherein the spindle is mounted on and centered by a fixed shaft e.g., post, stud shaft, etc.
- 238 Pivoting spindle:**
This subclass is indented under subclass 228. Subject matter having means for allowing the spindle to rock about a point.
- 239 Bolster type bearing:**
This subclass is indented under subclass 227. Subject matter having means for securing the bearing to a support.
- (1) Note. Bolster is the name given to a bearing used in spinning frame and is usually secured to a rail.
- 240 Lower end thrust bearing:**
This subclass is indented under subclass 227. Subject matter wherein the thrust bearing supports the spindle shaft at the shaft end, or near the end.
- (1) Note. The shaft end can have a smaller diameter than the main part wherein the thrust bearing then supports the shaft at that area.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
243, for a lower end thrust bearing for a spinning spindle.
- 241 With lubricating means:**
This subclass is indented under subclass 227. Subject matter including means for allowing a lubricant to flow to a bearing surface, or means for applying a lubricant to a bearing surface.

- SEE OR SEARCH THIS CLASS, SUB-CLASS:
322, for lubricating means for a radial bearing and see search notes.
- SEE OR SEARCH CLASS:
57, Textiles: Spinning, Twisting, and Twining, subclasses 133+ for lubricating means for receiving elements.
- 242 Base supported table or drum:**
This subclass is indented under subclass 226. Subject matter wherein the bearing is for holding a vertically revolving table, drum, etc.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
420+, for thrust bearings and see search notes.
- 243 Lower end thrust bearing:**
This subclass is indented under subclass 226. Subject matter wherein a thrust bearing supports the vertical shaft at the shaft end, or near the end.
- (1) Note. The shaft end can have smaller diameter than the main part wherein the thrust bearing then supports the shaft at that area.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
240, for a lower end thrust bearing of general use.
- 244 For shaped shaft end:**
This subclass is indented under subclass 243. Subject matter wherein the lower end of the shaft is shaped to engage the thrust bearing, or to engage an element, e.g., ball, supported by the thrust bearing.
- 245 Spherical shaft end:**
This subclass is indented under subclass 244. Subject matter wherein the shaft end is globular shaped so as to form a tangential point.
- 246 Conical shaft end:**
This subclass is indented under subclass 244. Subject matter wherein the shaft end is cone shaped.
- 247 With adjustment means:**
This subclass is indented under subclass 129. Subject matter including means to move the bearing, or structure supporting the bearing.
- SEE OR SEARCH CLASS:
105, Railway Rolling Stock, subclasses 218+ for axle Box mounting for trucks.
267, Spring Devices, subclass 265 for an adjustment for moving a pivotal end connection for a vehicle leaf spring.
- 248 For thrust bearing:**
This subclass is indented under subclass 247. Subject matter wherein the means for adjusting the bearing is for controlling thrust pressure.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
420+, for thrust bearings and see search notes.
- 249 Threaded member moves axially:**
This subclass is indented under subclass 248. Subject matter wherein a screw element is moved along the axis of a bearing for adjustment.
- (1) Note. The threaded member can be integral with the thrust bearing.
- 250 For crankshaft:**
This subclass is indented under subclass 248. Subject matter wherein the bearing either supports, or is carried by a crankshaft.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
294, for a sleeve, or liner for a crankshaft.
- 251 For thrust plate:**
This subclass is indented under subclass 248. Subject matter wherein the adjusting means moves a member in the shape of a disk, flat piece of material, etc. which is placed at the end of a shaft for the purpose of taking the thrust.

- 252 And support:**
This subclass is indented under subclass 247. Subject matter including bearing holding structure which holds the adjusting means for positioning of the bearing.
- SEE OR SEARCH CLASS:
474, Endless Belt Power Transmission Systems or Components, subclasses 113+, for bearings which are moved, with their supported shafts and pulleys, for the purpose of tensioning a belt.
- 253 Simultaneous adjustment:**
This subclass is indented under subclass 252. Subject matter wherein a plurality of bearings are simultaneously adjusted by actuation of the adjusting means.
- 254 For horse power or sand reel:**
This subclass is indented under subclass 252. Subject matter wherein the bearing is for use with means that is driven by a horse, or a sand reel mechanism.
- 255 Eccentric:**
This subclass is indented under subclass 252. Subject matter wherein the bearing is eccentric, or is mounted in an eccentric support and can be adjusted by rotation.
- SEE OR SEARCH CLASS:
403, Joints and Connections, subclasses 145+ for similar structure in an articulated joint.
- 256 For roller end support:**
This subclass is indented under subclass 252. Subject matter wherein the bearing is for supporting the end of a press, or conveying roller.
- 257 For suspended shaft:**
This subclass is indented under subclass 252. Subject matter wherein the bearing support structure extends from a surface, usually overhead, and is for supporting a shaft.
- (1) Note. These assemblies are sometimes referred to as shaft hangers.
- 258 Screw adjustment:**
This subclass is indented under subclass 257. Subject matter wherein the adjusting means includes a rotatable threaded member.
- 259 Horizontal and vertical:**
This subclass is indented under subclass 258. Subject matter which include both horizontally and vertically acting screw adjusting means.
- 260 Rectilinear:**
This subclass is indented under subclass 252. Subject matter wherein the adjusting means act in a linear direction.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
257+, for a suspended shaft rectilinear adjusting means.
- 261 Bearing surface:**
This subclass is indented under subclass 247. Subject matter wherein the adjusting means acts to adjust one portion of the bearing contact surface with respect to another portion of the bearing contact surface, or to apply pressure to an area of bearing contact surface.
- 262 For axle:**
This subclass is indented under subclass 261. Subject matter wherein the adjusting means is for moving a tapered sleeve, or adapted to compensate for wear on a stub axle, or axle rotatably mounting a wheel.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
202+, for bearings having resilient wear compensating adjusting means.
- SEE OR SEARCH CLASS:
301, Land Vehicles: Wheels and Axles, subclass 115 for screw attached wheel attaching devices having an adjustable plural part nut.
- 263 Adjustable bearing surface segment:**
This subclass is indented under subclass 261. Subject matter wherein the adjusting means acts on a discreet, relatively movable, section of the bearing contact surface.

- 264 Axial adjustment:**
This subclass is indented under subclass 263. Subject matter wherein the adjusting means acts to move the adjustable bearing surface segment in an axial direction.
- 265 Axially spaced annular segments:**
This subclass is indented under subclass 263. Subject matter wherein the adjustable bearing surface segment comprises a wholly, or partially circumferentially extending annular segment which is relatively radially adjustable and axially spaced with respect to another annular bearing contact surface segment.
- 266 Two opposed bearing surface segments:**
This subclass is indented under subclass 263. Subject matter wherein the bearing contact surface consists of two diametrically opposed relatively adjustable bearing surface supports.
- 267 With wedge adjustment:**
This subclass is indented under subclass 266. Subject matter wherein the adjusting means includes a tapered, or cam element which acts to position the adjustable bearing surface segment.
- 268 For connecting rod:**
This subclass is indented under subclass 267. Subject matter wherein the bearing is for use with a connecting rod.
- 269 Transverse screw adjustment:**
This subclass is indented under subclass 268. Subject matter wherein the wedge element is adjusted by a threaded element extending in directing crosswise to both the connecting rod axis and the bearing axis.
- 270 For connecting rod:**
This subclass is indented under subclass 266. Subject matter wherein the bearing is for use with a connecting rod.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
268+, for connecting rod bearing having a wedge adjustment.
430, for a nonadjustable connecting rod bearing.
- 271 Tapered sleeve:**
This subclass is indented under subclass 261. Subject matter wherein the bearing contact surface is tapered so that it can be adjusted to take up wear.
- (1) Note. Bearing assemblies wherein the bearing contact surface involves more than a single tapered sleeve, or where the tapered sleeve is formed of a plurality of discreet segments are found in subclasses 263+.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
263+, for bearing surface segments.
- 272 Split:**
This subclass is indented under subclass 271. Subject matter wherein the tapered sleeve is cut, or open longitudinally of its axis.
- (1) Note. Although split, all tapered sleeves in this subclass are single, unitary members.
- 273 Split sleeve:**
This subclass is indented under subclass 261. Subject matter wherein the bearing contact surface is cut, or open longitudinally of its axis.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
272, for tapered split sleeve.
- 274 Pressure applying:**
This subclass is indented under subclass 261. Subject matter wherein the adjusting means acts to apply force to a portion of a unitary bearing contact surface defining member.
- 275 Radial collar and sleeve:**
This subclass is indented under subclass 129. Subject matter having an element of tube shape and an element that embraces and extends radially beyond the tube element and are mounted on the shaft, which transmits thrust.
- 276 Specified sleeve or liner:**
This subclass is indented under subclass 129. Subject matter wherein one of the bearing contact surfaces is defined by an annular member having substantially cylindrical inner and outer

surfaces, the thickness between said inner and outer surfaces being less than the radius of said inner surface.

- (1) Note. This subclass does not include patents which claim a bearing element solely by setting forth the material of which it is made, of which see the appropriate composition, or stock material classes. In this connection the following classes should be considered.

SEE OR SEARCH CLASS:

- 16, Miscellaneous Hardware (e.g., Bushing, Carpet Fastener, Caster, Door Closer, Panel Hanger, Attachable or Adjunct Handle, Hinge, Window Sash Balance, etc.), subclasses 2.1+, for similar bushings which line openings, or sockets to reinforce the same and/or provide a smooth surface to prevent abrasion of elements passing there-through or there into, without constituting a bearing.
- 29, Metal Working, subclasses 898+ for methods of making bearings.
- 75, Specialized Metallurgical Processes, Compositions for Use Therein, Consolidated Metal Powder Compositions, and Loose Metal Particulate Mixtures, for articles defined solely by their metal, or alloy composition.
- 138, Pipes and Tubular Conduits, for hollow, or tubular stock.
- 148, Metal Treatment, particularly subclass 400.
- 156, Adhesive Bonding and Miscellaneous Chemical Manufacture, appropriate subclass for methods of making a machine element, or bearing by a laminating operation.
- 252, Compositions, subclasses 9+ for lubricating compositions and especially subclasses 12+ for bearings having a lubricating function claimed solely in terms of their compositions.
- 295, Railway Wheels and Axles, subclass 35, for bushings for railway car wheels.
- 384, Bearings, subclasses 53+ for journal brasses and subclass 216 for antifriction bearings.

415, Rotary Kinetic Fluid Motors or Pumps, subclasses 170.1+ and 230+ for a motor, or pump bearing, seal, or liner and including pump, or fluid motor structure of the type there classifiable.

428, Stock Material or Miscellaneous Articles, appropriate subclasses, for a stock material product in the form of a single, or plural layer web, or sheet not elsewhere classified.

277 Insulating:

This subclass is indented under subclass 276. Subject matter wherein either the sleeve, liner, or supporting structure is made of a material selected for its thermal, or electrical insulating properties.

278 Temperature compensating:

This subclass is indented under subclass 276. Subject matter designed to compensate for changes in temperature, e.g., operate at high temperatures.

SEE OR SEARCH THIS CLASS, SUBCLASS:

317+, for specified cooling means for a bearing.

279 Porous metal:

This subclass is indented under subclass 276. Subject matter wherein either the sleeve, liner, or a support structure has pores through which the lubricant may pass.

- (1) Note. The holes are in a pattern, or array form.

SEE OR SEARCH THIS CLASS, SUBCLASS:

293, for an array of holes for lubricant.

280 Liner on shaft:

This subclass is indented under subclass 276. Subject matter wherein the liner, or sleeve is mounted on a shaft.

281 Removably secured:

This subclass is indented under subclass 280. Subject matter wherein the liner, or sleeve can be separated for the shaft.

- 282 Bearing surface insert:**
This subclass is indented under subclass 276. Subject matter wherein the bearing surface of the sleeve, or liner is provided with a solid lubricating, or antifriction material set into its surface.
- 283 Groove:**
This subclass is indented under subclass 282. Subject matter wherein the insert is mounted in a narrow furrow, hollow cut, etc., in the bearing surface.
- 284 Pocket array:**
This subclass is indented under subclass 282. Subject matter wherein there is more than one insert which are mounted in a regular pattern of holes formed in the bearing surface.
- 285 Circular pocket:**
This subclass is indented under subclass 284. Subject matter wherein the pockets have circular cross-sections.
- 286 Lubricant distributing:**
This subclass is indented under subclass 276. Subject matter wherein the bearing surface of the sleeve, or liner is contoured to facilitate the distribution of lubricant over the bearing surface.
- (1) Note. Lubricant bearings for shafts which do not have sleeves on liners are in subclasses 397+.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
322, for lubricating of general use.
397+, for lubricating a shaft.
- SEE OR SEARCH CLASS:
267, Spring Devices, subclass 264 and 268 for lubrication features on a connecting bearing for a vehicle leaf spring.
- 287 High speed:**
This subclass is indented under subclass 286. Subject matter wherein the lubricant sleeve is designed to operate at speeds greater than 30,000 r.p.m.
- 288 For crankshaft:**
This subclass is indented under subclass 286. Subject matter wherein the lubricant distributing sleeve is for use on a crankshaft.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
294, for a sleeve for a crankshaft.
- 289 For rotary member:**
This subclass is indented under subclass 286. Subject matter wherein the lubricant distributing sleeve is for a rotary element, e.g., wheel, pulley, etc. which is to be mounted on a fixed support, e.g., shaft.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
416+, for a rotary member and broadly recited plain bearing.
- 290 Outer sleeve or shaft:**
This subclass is indented under subclass 289. Subject matter wherein the lubricant distributing sleeve is nonrotatably mounted on an end of a fixed axle.
- 291 Groove:**
This subclass is indented under subclass 286. Subject matter wherein lubricant is distributed by narrow furrow, hollow cut, etc. in the bearing surface.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
378, for spiral groove in an axle, or hub for lubricant.
- 292 Helical or herring bone:**
This subclass is indented under subclass 291. Subject matter wherein the grooves are arranged in either a helical, or a herring bone configuration.
- 293 Pocket array:**
This subclass is indented under subclass 286. Subject matter wherein a regular pattern of lubricant distributing holes is formed on the bearing surface of the sleeve, or liner.

- SEE OR SEARCH THIS CLASS, SUB-CLASS:
279, for a sleeve, or liner made of porous material.
- 294 For crankshaft:**
This subclass is indented under subclass 276. Subject matter wherein the sleeve, or liner supports, or is carried by a crankshaft.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
250, for a thrust bearing for a crankshaft.
- 295 Mounting feature:**
This subclass is indented under subclass 276. Subject matter wherein the sleeve includes structure to facilitate the mounting thereof in the bearing support.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
280+, for a liner mounted on a shaft.
- 296 Radial protrusion or sleeve end flange:**
This subclass is indented under subclass 295. Subject matter wherein the sleeve mounting structure includes an outwardly extending radial protrusion, or a pair of outwardly expanding flanges located on opposite ends of the sleeve.
- 297 Nonmetal:**
This subclass is indented under subclass 276. Subject matter wherein the sleeve, or liner, or the bearing contact surface thereof, is formed of a nonmetallic material, e.g., plastic, wood, etc.
- 298 Fabric layer and capillary passages:**
This subclass is indented under subclass 297. Subject matter wherein the sleeve either includes a woven fabric layer, or is formed with capillary passages opening to the bearing contact surface.
- 299 Nylon:**
This subclass is indented under subclass 297. Subject matter comprising a layer which contains a polymeric compound is next to a polyester containing layer.
- 300 Polytetrafluorethylene:**
This subclass is indented under subclass 297. Subject matter comprising a layer which contains fluorine.
- 301 Spirally split:**
This subclass is indented under subclass 276. Subject matter wherein the sleeve, or liner is separated divided, etc. along a spiral, or helical line.
- 302 Distributed weight:**
Subject matter under subclass 129 having means for distributing a load over the entire bearing.
- 303 For thrust bearing:**
This subclass is indented under subclass 302. Subject matter comprising means for spreading the thrust over various thrust bearing parts.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
420+, for thrust bearings and see search notes.
- 304 Tandem thrust:**
This subclass is indented under subclass 303. Subject matter wherein various thrust bearing parts are axially spaced and means are provided to relate the thrust force on one part to the thrust force on another.
- 305 Grooved:**
This subclass is indented under subclass 303. Subject matter wherein the thrust distributing means comprises grooves in a bearing surface.
- 306 Pivoted pad:**
This subclass is indented under subclass 303. Subject matter wherein the load distribution means has a rocking, or tilting movement and forms only a segment of a bearing surface.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
228+, for a load distributing pivoted pad and see search notes.
- 307 With lubricating means:**
This subclass is indented under subclass 306. Subject matter including means for allowing a lubricant to flow to a bearing surface.

- 308 Pad mounting structure:**
This subclass is indented under subclass 306. Subject matter having specified means for holding or supporting the pad.

SEE OR SEARCH THIS CLASS, SUB-CLASS:
312, for tilting pad mounting structure.
- 309 Pivoted pad:**
This subclass is indented under subclass 302. Subject matter wherein the load distribution means has a rocking, or tilting movement and forms only a segment of a bearing surface.

SEE OR SEARCH THIS CLASS, SUB-CLASS:
117, for a radial bearing having a pivoted fluid pad.
122, for a thrust bearing having pivoted fluid pad.
306, for a thrust bearing pivoted pad.
- 310 Noncircumferential:**
This subclass is indented under subclass 309. Subject matter wherein a radially outer relatively rotating bearing structure is semicircular, or less in extent.
- 311 Lubricant supply structure:**
This subclass is indented under subclass 309. Subject matter including means in the bearing for allowing lubricant to reach a bearing surface.

SEE OR SEARCH THIS CLASS, SUB-CLASS:
322+, for lubricating structure of a bearing.
- 312 Pad mounting structure:**
This subclass is indented under subclass 309. Subject matter having specified means for holding, or supporting the pad.

SEE OR SEARCH THIS CLASS, SUB-CLASS:
308, for pad mounting structure for a thrust bearing.
- 313 Cooling by lubricant:**
This subclass is indented under subclass 129. Subject matter wherein a lubricant also lowers the temperature at the bearing to keep the temperature from getting too high.

SEE OR SEARCH THIS CLASS, SUB-CLASS:
317+, for specified cooling means.
322, for lubricating a bearing where the lubricant does not act as a coolant.

SEE OR SEARCH CLASS:
184, Lubrication, subclass 104, for heating and cooling devices for lubricators.
- 314 Emergency lubrication:**
This subclass is indented under subclass 313. Subject matter having means for supplying lubrication and cooling fluid because of a generally unexpected occurrence.
- 315 Water lubrication:**
This subclass is indented under subclass 313. Subject matter wherein a lubricating and cooling medium is water.

SEE OR SEARCH THIS CLASS, SUB-CLASS:
97, for water lubricated propellor shaft and well shaft.
- 316 Fluid path:**
This subclass is indented under subclass 313. Subject matter having means defining a flow passage for the lubricating fluid.

(1) Note. The lubricant also acts as the cooling means.

SEE OR SEARCH THIS CLASS, SUB-CLASS:
321, for a coolant path.
- 317 Specified cooling means:**
This subclass is indented under subclass 129. Subject matter wherein the bearing is cooled by a medium other than a lubricant, e.g., radiatory means, by a separate fluid in passage through the bearing, etc.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 278, for temperature compensating sleeve, or liner.
313+, for a cooling lubricant.
900, for cooling or heating not designated in the regular schedule.

318 Mist:

This subclass is indented under subclass 317. Subject matter wherein the lubricant is suspended in a gaseous coolant.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 496, for cooling, heating or insulating an antifriction bearing.
900, for cooling or heating not designated in the regular schedule.

319 Frozen lubricant:

This subclass is indented under subclass 317. Subject matter wherein the liquid lubricant is congealed by cold.

- (1) Note. The frozen lubricant is used at room temperature wherein it is frozen all, or some of the time.

320 Nonliquid cooling:

This subclass is indented under subclass 317. Subject matter wherein the cooling means comprises a medium other than a liquid.

321 Coolant path:

This subclass is indented under subclass 317. Subject matter wherein the coolant flows through specified passage.

322 Lubricating:

This subclass is indented under subclass 129. Subject matter having means in the bearing for allowing a lubricant to reach a bearing surface.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 286, for lubricating means in a bearing sleeve, or liner.
307, for lubricating means for thrust bearings and cooling means.
313, for lubricating and cooling means.
462+, for lubricating an antifriction bearing.

SEE OR SEARCH CLASS:

- 123, Internal-Combustion Engines, appropriate subclasses for lubrication of engine bearing elements
184, Lubrication, for lubricating means not part of bearing.
267, Spring Devices, subclass 268 for an end connection for a vehicle leaf spring and having a lubrication feature.

368 For thrust bearing:

This subclass is indented under subclass 322. Subject matter wherein lubricating is for a bearing designed for loads imposed in the direction of the axis of rotation.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 420, for thrust plain bearing and see search notes.

369 Forced feed:

This subclass is indented under subclass 368. Subject matter wherein the lubricant is supplied to a bearing surface by pressure.

- (1) Note. Included are pump systems and bearings grooved, or otherwise altered so that lubricant under pressure can be supplied to the bearing surface, a reservoir, or pressure normally produced by rotation of a shaft is not proper for this subclass.

- (2) Note. If the lubricant supports one of two relatively rotating elements to the extent that there is positive clearance between them in operation, the patent is in subclasses 100+.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 100+, for a fluid bearing.
373, for means to force feed a lubricant to a bearing between a fixed axle and an element rotatably supported thereon.
398, for means to force feed a lubricant to a bearing which cooperates with a rotary shaft.
400, 401+ and 403+, for a lubricant reservoir.

- 370 Capillary:**
This subclass is indented under subclass 368. Subject matter wherein the lubricant is conveyed by capillary means to the bearing.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
379, for capillary means for lubricating a radial bearing and see search notes.
- 371 For bearing at end of shaft:**
This subclass is indented under subclass 368. Subject matter wherein the lubricant is supplied to bearing surface which is located at the end of a shaft.
- 372 Fixed shaft:**
This subclass is indented under subclass 322. Subject matter for the lubrication of a bearing surface between a stationary axle and an element rotatably supported thereon.
- (1) Note. The device usually involves some modification of the axle itself.
- 373 Forced feed:**
This subclass is indented under subclass 372. Subject matter having means to supply the lubricant to the bearing by pressure.
- (1) Note. Included are pump systems and bearings grooved, or otherwise otherwise altered so that lubricant under pressure can be supplied to the bearing surface. A reservoir, or pressure normally produced by rotation of a shaft is not proper for this subclass.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
369, for lubricant force feed to a thrust bearing and see search notes.
- 374 Yoke reservoir:**
This subclass is indented under subclass 372. Subject matter having means for holding the lubricant which is shaped so that the holding means is on both sides of a rotating element.
- 375 Shaft-supported reservoir:**
This subclass is indented under subclass 372. Subject matter having means to hold the lubricant which is held on the axle.
- 376 At end of shaft:**
This subclass is indented under subclass 375. Subject matter wherein the reservoir is held at one of the extremities of the axle.
- 377 Specified external feed:**
This subclass is indented under subclass 372. Subject matter wherein the lubricant is supplied to the axle surface by a particularly described means for allowing the lubricant to flow from an area not enclosed in the axle.
- 378 Spiral groove:**
This subclass is indented under subclass 377. Subject matter wherein the lubricant is distributed to the bearing surface by a narrow furrow, hollow cut, etc. in the form of a spiral on an axle, or hub.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
291+, for a groove in sleeve or liner for lubricant.
- 379 Capillary:**
This subclass is indented under subclass 377. Subject matter wherein a capillary means is used to convey the lubricant to the axle surface.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
160+, for lubricating a rotating shaft of a railway car journal.
370, for capillary means used with a thrust bearing.
382, and 383, for capillary means used with a fixed shaft internal feed.
387, for capillary means used with a rotating reservoir.
402, and 405+, for capillary means used with a reservoir external to a bearing.
- 380 Internal feed:**
This subclass is indented under subclass 372. Subject matter in which the lubricant is supplied to the axle surface by a passage through the axle.
- 381 Internal reservoir:**
This subclass is indented under subclass 380. Subject matter wherein the axle is bored out to form a reservoir for supplying lubricant to the axle surface.

- 382 Capillary:**
This subclass is indented under subclass 381. Subject matter wherein a capillary means is used to convey the lubricant to the axle surface.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
379, for capillary means for lubricating a radial bearing and see search notes.
- 383 Capillary:**
This subclass is indented under subclass 380. Subject matter wherein a capillary means is used to convey the lubricant to the axle surface.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
379, for capillary means for lubricating a radial bearing and see search notes.
- 384 Clearer or agitator:**
This subclass is indented under subclass 372. Subject matter having an element which is inserted into a lubricating passage for the purpose of opening the passage, or for stirring the lubricant therein.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
395, for an agitator in a reservoir that rotates about an axis.
- 385 Reservoir in rotating member:**
This subclass is indented under subclass 322. Subject matter wherein the rotating element carries, or is constructed with a reservoir for lubricant.
- 386 Removable reservoir:**
This subclass is indented under subclass 385. Subject matter wherein the reservoir can be separated for the rotating support.
- 387 Capillary:**
This subclass is indented under subclass 385. Subject matter wherein a capillary means is used to convey the lubricant from the reservoir to the axle surface.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
379, for capillary means for lubricating a radial bearing and see search notes.
- 388 With feed regulator:**
This subclass is indented under subclass 385. Subject matter having means for controlling the rate of flow from the reservoir to the bearing surface, e.g., by a valve.
- 389 Feed to shaft end and center:**
This subclass is indented under subclass 385. Subject matter having means for feeding the lubricant simultaneously to the center and end of the axle from the rotating member.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
390, for lubricant to end of axle.
391, for lubricant to center of axle.
- 390 End feed:**
This subclass is indented under subclass 385. Subject matter having means for feeding the lubricant to the end of the axle, usually from a reservoir at the side of the rotating member.
- 391 Center feed:**
This subclass is indented under subclass 385. Subject matter having means for feeding the lubricant to the center of the axle, usually from a reservoir in the center of the rotating element.
- 392 Including distributing means:**
This subclass is indented under subclass 385. Subject matter having an element which spreads the lubricant over the bearing surface.
- 393 Including inward deflector:**
This subclass is indented under subclass 385. Subject matter having at least one curved propeller, vane, tube, etc. which is used for carrying the lubricant to the bearing surface.
- 394 Including rotary blade:**
This subclass is indented under subclass 385. Subject matter wherein the rotating element has at least one propeller, vane, etc. attached to it and projects into the reservoir.
- 395 With agitator:**
This subclass is indented under subclass 385. Subject matter including an element member for stirring up the lubricant thereby aiding in applying the lubricant to the shaft surface.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

384, for an agitator within a lubricating passage.

396 Bolt type shaft:

This subclass is indented under subclass 32. Subject matter for lubricating the engaging surfaces of a bolt and a member turnably mounted thereon.

(1) Note. This subclass includes vehicle suspension spring shackle bolt lubrication.

SEE OR SEARCH CLASS:

16, Miscellaneous Hardware (e.g., Bushing, Carpet Fastener, Caster, Door Closer, Panel Hanger, Attachable or Adjunct Handle, Hinge, Window Sash Balance, etc.), subclass 161 for lubricated hinges.

74, Machine Element or Mechanism, subclass 257, for lubricated sprocket chain pins.

367, Communications, Electrical: Acoustic Wave System and Devices, subclass 54, for end connections for vehicle leaf springs.

397 For rotary shaft:

This subclass is indented under subclass 322. Subject matter for the lubrication of a bearing for rotating shaft.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

160+, for lubricating a rotating shaft of a railway car journal.

398 Forced feed:

This subclass is indented under subclass 397. Subject matter having means to supply the lubricant to the bearings by pressure.

(1) Note. Included are pump systems and bearings groove, or otherwise altered so that lubricant under pressure can be supplied to the bearing surface. A reservoir, or pressure normally produced by rotation of a shaft is not proper for this subclass.

(2) Note. If the lubricant supports one of the two relatively rotating elements to the extent that there is positive clearance between them in operation, the patents are placed in 100+.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

369, for lubricant force feed to a thrust bearing and see search notes.

399 Lubricant metering structure:

This subclass is indented under subclass 398. Subject matter having specified means in the bearing structure to promote uniform lubrication flow.

400 Reservoir external to bearing:

This subclass is indented under subclass 397. Subject matter having a receptacle which is separate from the bearing, or bearing support and supplies lubricant to the bearing.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

372+, for reservoir used with a fixed shaft.

401, for an upper reservoir which is part of the bearing, or bearing support.

403, for a lower reservoir which is part of the bearing, or bearing support.

401 Upper reservoir for horizontal shaft:

This subclass is indented under subclass 397. Subject matter having a receptacle wherein the receptacle bottom is above a horizontal shaft and the lubricant is supplied to the bearing from above the axis of the shaft.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

400, for a reservoir external to a bearing, or bearing support and see search note.

402 Capillary:

This subclass is indented under subclass 401. Subject matter wherein a capillary means is used to convey the lubricant from the upper reservoir to the bearing surface.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

379, for capillary means for lubricating a radial bearing and see search notes.

- 403 Lower reservoir for horizontal shaft:**
This subclass is indented under subclass 397. Subject matter having a receptacle wherein the receptacle bottom is below a horizontal shaft and the lubricant is supplied to the bearing from below the axis of the shaft.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
165+, for a lower reservoir for a railway car journal.
400, for a reservoir external to a bearing, or bearing support and see search notes.
- 404 Shaft operated elevating means:**
This subclass is indented under subclass 403. Subject matter having an element, other than the bearing member, operated by the shaft to raise lubricant to a point above the bottom of the bearing surface and allows the lubricant flow to the bearing under low pressure, e.g., by gravity.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
398+, for all means supplying lubricant to the bearing surfaces under light pressure.
- SEE OR SEARCH CLASS:
184, Lubrication, subclasses 11.1+ and 13.1, for splash type lubricators.
- 405 Band or chain:**
This subclass is indented under subclass 404. Subject matter having a belt shaped element, or a flexible series of joined links, loosely carried by the shaft, dips into the lubricant.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
167, for a band lubricant feed means to a railway car bearing.
- 406 Ring type:**
This subclass is indented under subclass 405. Subject matter wherein the means to raise the lubricant is circular and rigid.
- 407 Roller or ball:**
This subclass is indented under subclass 404. Subject matter wherein a cylindrical, or spherical shaped element raises the lubricant.
- (1) Note. If the roller, or ball acts also as a bearing, see the appropriate roller-bearing subclass below.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
177, for a roller applicator of lubricant to a shaft of a railway car journal.
- 408 Capillary:**
This subclass is indented under subclass 403. Subject matter wherein a capillary means is used to convey the lubricant from the lower reservoir to the bearing.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
379, for capillary means for lubricating a radial bearing and see search notes.
- 409 With wick biasing means:**
This subclass is indented under subclass 408. Subject matter including means tending to urge the wick against a bearing surface.
- 410 With wick retainer:**
This subclass is indented under subclass 408. Subject matter including specified means to hold, or support capillary means.
- 411 Differing capillary properties:**
This subclass is indented under subclass 408. Subject matter wherein the capillary means is made of more than one kind of capillary material which have distinct capillary properties.
- 412 With lubricant impelling means:**
This subclass is indented under subclass 408. Subject matter including means for pumping lubricant from one location to another.
- 413 Wick structure:**
This subclass is indented under subclass 408. Subject matter wherein the capillary means is a fibrous element having a specified configuration.
- SEE OR SEARCH CLASS:
252, Composition, subclass 425.5 for wick composition.

414 Suction or pressure:

This subclass is indented under subclass 403. Subject matter having means to feed the bearing by a vacuum and/or back pressure.

415 For vertical shaft:

This subclass is indented under subclass 397. Subject matter wherein the lubricating is for a bearing which receives a radial force from a shaft whose axis is perpendicular to a horizontal plane.

SEE OR SEARCH THIS CLASS, SUBCLASS:

368+, for lubricating a thrust bearing combined with a radial bearing.

416 For rotary member:

This subclass is indented under subclass 129. Subject matter wherein the bearing assembly comprises a support and bearing for a generally cylindrical, or disk shaped rotary element e.g., wheel, pulley, etc.

(1) Note. A wheel, shaft, pulley, etc. can be claimed in name only with modifications provided for the bearing.

SEE OR SEARCH THIS CLASS, SUBCLASS:

289+, for lubricant distribution to a rotary member, e.g., sleeve, or liner.

SEE OR SEARCH CLASS:

301, Land Vehicles: Wheels and Axles, subclasses 109+, for axle boxes, 131, for axle spindles and 134+, for skein ended axis.

417 Pulley:

This subclass is indented under subclass 416. Subject matter wherein the bearing is for a rotary element which is used to transmit, or receive power through a belt which travels over its face.

SEE OR SEARCH CLASS:

474, Endless Belt Power Transmission Systems or Components, subclasses 151+ for pulley structure.

418 Roller:

This subclass is indented under subclass 416. Subject matter wherein the bearing is for a rotary element having a cylindrical outer surface, or an outer surface shaped to engage a track.

SEE OR SEARCH CLASS:

193, Conveyors, Chutes, Skids, Guides, and Ways, for general assembly of rolls, or the structure thereof.

198, Conveyors: Power-Driven, for general assembly of rolls, or the structure thereof.

492, Roll or Roller, subclasses 16+ for a roll, per se, not elsewhere provided for, in which the outer surface of the roll is rotatable relative to its supporting shaft.

419 Elongated:

This subclass is indented under subclass 418. Subject matter wherein the length of the roller is greater than the diameter of the roller.

420 Thrust bearing:

This subclass is indented under subclass 129. Subject matter designed for loads imposed in the direction of the axis of rotation.

SEE OR SEARCH THIS CLASS, SUBCLASS:

105, for fluid thrust bearing with flexible elements.

107+, for fluid radial and thrust bearing.

121+, for a fluid thrust bearing.

161, for railway car thrust bearings.

193+, for a self adjusting thrust bearing for a vertical shaft.

223+, for a thrust bearing resiliently mounted.

228+, for a thrust and radial bearing for a vertical shaft.

242, for a lower end thrust bearing.

248+, for a thrust bearing with adjustment means.

303+, for a thrust bearing of the distributing weight type.

368, for a thrust bearing with lubricating means.

421 For pivoted or towed vehicle:

This subclass is indented under subclass 420. Subject matter wherein the pressure, or force is at the center about which a trailer turns when connected to a vehicle pulling it. e.g., fifth wheel for a wagon.

SEE OR SEARCH CLASS:

105, Railway Rolling Stock, subclass 189, for center plate bogies for railway trucks.
212, Traversing Hoist, subclass 70 for pivots for rotary cranes.

422 For pivot of vehicle wheel frame:

This subclass is indented under subclass 420. Subject matter wherein the pressure, or force is at the center about which a support turns which is between a body e.g., railway car and wheels.

423 For railway car side:

This subclass is indented under subclass 420. Subject matter wherein the pressure, or force is between the body bolster and truck bolster of a railway car and which are subject to intermittent loader as the car body tilts from a vertical axis.

SEE OR SEARCH CLASS:

105, Railway Rolling Stock, subclasses 200+, for bolster connecting for bogies.

424 Axially spaced collars:

This subclass is indented under subclass 420. Subject matter wherein the shaft is provided with a number of elements which embrace the shaft and are arranged in series along the shaft axis and which are adapted to be engaged and supported by annular projecting bearings mounted in a bearing casing.

425 Including thrust plate at shaft end:

This subclass is indented under subclass 420. Subject matter having means in the shape of a disk, flat piece of material, etc. Which is placed at the end of the shaft for the purpose of taking the thrust.

426 Plural end plates:

This subclass is indented under subclass 425. Subject matter wherein a series of plates, or disks are placed between the end of the shaft and the bearing casing.

427 Axially related hub liner:

This subclass is indented under subclass 425. Subject matter wherein the plate is in the form of a washer, annular plate, etc. which embraces the shaft between a hub and a stationary element, or bearing.

428 Mounting or support:

This subclass is indented under subclass 129. Subject matter having means to hold, or steady the bearing against the force of gravity.

(1) Note. The bearing is usually secured to the mounting, or support.

SEE OR SEARCH THIS CLASS, SUBCLASS:

537+, for mounting an antifriction ball bearing.
584+, for mounting an antifriction roller bearing.
620, for mounting an antifriction thrust bearing.

429 For crankshaft:

This subclass is indented under subclass 428. Subject matter wherein the bearing is for supporting a shaft bent at right angles with respect to an engine etc., or is carried on a portion of a shaft bent at right angles.

SEE OR SEARCH THIS CLASS, SUBCLASS:

457+, for antifriction crankshaft bearing.

SEE OR SEARCH CLASS:

74, Machine Element or Mechanism, subclasses 469+ for control lever and linkage system and subclasses 606+ for casings.

430 Connecting rod:

This subclass is indented under subclass 429. Subject matter wherein the bearing carried in the crankshaft has an element which is to be joined to another element to cause motion.

- SEE OR SEARCH THIS CLASS, SUB-CLASS:
268, and 270, for an adjustable connecting rod bearing.
- 431 Pedal type crank:**
This subclass is indented under subclass 429. Subject matter wherein the bearing is for supporting an arm bent at right angle and designed for a foot pedal to be attached to one end of the arm.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
458, for an antifriction type pedal crank bearing.
- 432 Block and cap type:**
This subclass is indented under subclass 429. Subject matter wherein the bearing holding means comprises a base element for supporting the bottom part of a bearing surface and a top element for holding the upper part of a bearing surface and means to fasten the base and top together.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
434, for a block and cap of general use.
- 433 Engine housing closure:**
This subclass is indented under subclass 432. Subject matter wherein the block and cap are designed to seal, or close an opening in an engine housing in which a crankshaft is mounted.
- 434 Block and cap type:**
This subclass is indented under subclass 428. Subject matter wherein the bearing holding means comprises a base element for supporting the bottom part of a bearing surface and a top element for holding the upper part of a bearing surface and means to fasten the base and top together.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
432, for a block and cap for holding a crankshaft.
- 435 Lock type:**
This subclass is indented under subclass 428. Subject matter wherein part of the bearing contact surface is movable so as to release the rotating shaft from a fixed position in the bearing.
- 436 Pivoted:**
This subclass is indented under subclass 435. Subject matter wherein the movable bearing surface turns about a fixed point.
- (1) Note. Locating elements which are elongated and have a curved bearing contact surface formed at one end are known in the art as "hook".
- 437 Having bolt securing means:**
This subclass is indented under subclass 436. Subject matter wherein the pivoted bearing surface is held in position by a threaded element.
- 438 Machine housing:**
This subclass is indented under subclass 428. Subject matter wherein the bearing supports a shaft extending into an interior wall of a substantially closed means that transmits, or changes the application of energy, e.g., an electric motor, a pump, etc.
- 439 Mounted in wall aperture:**
This subclass is indented under subclass 428. Subject matter wherein the bearing, or bearing support structure is designed to be held in an opening, or hole formed in a flat support surface.
- 440 Bearing surface integral with support:**
This subclass is indented under subclass 428. Subject matter wherein the bearing contact surface is formed with a major portion of the bearing support structure.
- 441 Annular support:**
This subclass is indented under subclass 428. Subject matter wherein the outer surface of the bearing support structure is designed to be held in, or on a circular element.
- (1) Note. The bearing may be supported within a pipe casing.

442 Single direction:

This subclass is indented under subclass 428. Subject matter wherein the bearing is supported by or supported on supporting structure which generally extends away from a supporting surface in one direction such that the bearing is supported from only one side.

- (1) Note. Nonadjustable shaft hangers are classified here.

SEE OR SEARCH CLASS:

248, Supports, subclasses 49+ for pipe and cable supports, especially subclasses 58+ for the suspended type. Also subclasses 200+ for brackets, per se.

443 From above:

This subclass is indented under subclass 442. Subject matter wherein the supporting surface is located above the bearing.

444 From below:

This subclass is indented under subclass 442. Subject matter wherein the supporting surface is located below the bearing.

445 Antifriction bearing:

This subclass is indented under subclass 91. Subject matter wherein the friction is in the nature of rolling friction, as in a ball or roller bearing.

- (1) Note. Bearing assemblies and identifiable elements of bearing are in this and indented subclasses.
- (2) Note. A bearing assembly is those elements necessary for the operation of the bearing, that is friction reducing function.
- (3) Note. Antifriction bearing subcomponents are classified here if they are disclosed, e.g., whether the bearing subcomponent is for a plain or antifriction bearing, then the bearing subcomponent is classified above under plain bearings.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 92+, for an antifriction bearing with conventional roller drill bit structure.
- 126+, for an antifriction bearing combined with a plain bearing.

446 Nonbearing magnetic feature:

This subclass is indented under subclass 445. Subject matter wherein the magnetic feature is other than a magnetic support that is a magnetic bearing feature.

- (1) Note. A magnetic bearing is defined as where lines of magnetic force sustain the weight of a rotating body against the force of gravity.

SEE OR SEARCH CLASS:

310, Electrical Generator or Motor Structure, subclass 90.5 for a magnetic bearing.

447 Elliptical eccentric, alternating roller, or mass ball features; compensating for non-thermal deformation; centrifugal preload:

This subclass is indented under subclass 445. Subject matter wherein the bearing or bearing support structure includes (a) elliptical features or (b) features wherein two axes are offset or (c) where rollers alternate their orientations; or (d) where the bearing comprises a loose mass of balls; or (e) where means are provided for compensating for nonthermal deformation, e.g.; deformation due to weight or other force of (f) including centrifugal preloading means.

448 Sensor or inspection features; liquid metal or shipping protection features; bearing member integral with seal:

This subclass is indented under subclass 445. Subject matter wherein the bearing or bearing support structure includes (a) means for sensing or visually inspecting bearing conditions; or (b) where a liquid metal such as mercury or gallium is employed; or (c) where means are provided for protection of the bearing during shipping or initial operation; or (d) where a race, cage, or rolling element is in unitary form with a seal.

- (1) Note. "Unitary" means in one piece.

- 449 Outer race integral with wheel:**
This subclass is indented under subclass 445. Devices wherein an outer race is a wheel.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
543+, for a fixed shaft and rotating outer element.
- 450 Skew prevention; formular relationship:**
This subclass is indented under subclass 445. Subject matter wherein (a) means are provided to avoid undesired roller skew; or (b) wherein a specified formula in mathematical symbols relates different bearing elements.
- (1) Note. Skew angle is defined as the angle between the axis of rotation of the rolling element (roller and a plane normal to the path or relative motion of the raceways confronting the rolling element.
- 451 Recirculating or nonannular path:**
This subclass is indented under subclass 445. Subject matter wherein antifriction elements recirculated in a closed path or where the path is otherwise nonannular, e.g., spiral.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
43+, for linear recirculating bearings.
- 452 Radial bearing with separate thrust bearing; radial ball-thrust roller:**
This subclass is indented under subclass 445. Subject matter comprising rolling elements some of which take mainly radial load and some of which take mainly thrust load.
- (1) Note. Where a single element takes both type of load, the patent is classified according to the load sustaining in the greater proportion. If this is not clear then the presumption is that the greater load is in the radial direction.
- (2) Note. Bearings where there is a ball taking radial load and a roller taking axial load specifically are classified in this subclass.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
494, for a ball bearing and roller bearing boll for radial load.
- 453 Radial ball-thrust ball:**
This subclass is indented under subclass 452. Subject matter wherein a ball takes radial load and another ball takes axial load.
- 454 Radial roller-thrust ball:**
This subclass is indented under subclass 452. Subject matter wherein a roller takes radial load and a ball takes thrust load.
- 455 Radial roller-thrust roller:**
This subclass is indented under subclass 452. Subject matter wherein a roller takes radial load and another roller takes thrust load.
- 456 Radial bearing:**
This subclass is indented under subclass 445. Subject matter designed for loads imposed mainly normal to the axis of rotation.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
114+, for fluid type radial bearings.
- 457 For crankshaft:**
This subclass is indented under subclass 456. Subject matter wherein the bearing is for supporting a shaft bent at right angles with respect to an engine or is carried on a portion of a shaft bent at right angles.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
429+, for plain rotary bearing for crankshaft.
- SEE OR SEARCH CLASS:
74, Machine Element or Mechanism, subclasses 469+ for control lever and linkage systems and subclasses 606+ for casings.
- 458 For pedal crank:**
This subclass is indented under subclass 457. Subject matter wherein the bearing is for supporting an arm bent at a right angle and designed for a foot pedal to be attached to one end of the arm.

- SEE OR SEARCH THIS CLASS, SUB-CLASS:
431, for plain rotary bearings for pedal crankshafts.
- SEE OR SEARCH CLASS:
74, Machine Element or Mechanism, subclasses 594.1+ for cranks and pedals with additional elements.
- 459 Railway car journal:**
This subclass is indented under subclass 456. Subject matter wherein the bearing is particularly adapted for railway car journal boxes.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
79+, for car-journal lubricators.
- SEE OR SEARCH CLASS:
259, Railway Wheels and Axles, appropriate subclasses for car wheel and axle construction and wheel-attaching devices.
- 460 Disk plow:**
This subclass is indented under subclass 456. Subject matter having means for supporting the bearing which receives a hub or rotary shaft of a plow or colter disk.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
157, for a plain rotary bearing for a disk plow type element.
- 461 Concentric:**
This subclass is indented under subclass 456. Subject matter comprising a plurality of radially spaced rolling elements in concentric relation.
- (1) Note. "Concentric" means having the same point as the center of a circle or a sphere, but for this subclass it will suffice if the radially spaced rolling elements overlap axially.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
512, for plural axially spaced balls with an integral race and the balls on the same side of the race.
- 513+, for plural axially spaced balls on opposite sides of a race.
- 462 Lubricating:**
This subclass is indented under subclass 456. Subject matter wherein an antifriction bearing is combined with a lubricating means and the antifriction bearing is modified to cooperate with the lubricating means.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
322, for lubricating means for a plain bearing and see search notes.
606, for antifriction thrust bearing lubricating
- SEE OR SEARCH CLASS:
184, Lubrication, for lubricating means not part of a bearing.
- 463 Solid lubricant feature:**
This subclass is indented under subclass 462. Subject matter wherein a lubricant is in a firm state when used.
- 464 Dipping, surface treatment or member versus lubricant density:**
This subclass is indented under subclass 462. Subject matter wherein (a) the bearing is sometimes immersed in lubricant and sometimes not, (b) where a bearing surface is treated for lubricating, e.g., embedded or coated or (c) where the density of the rolling element is related to the lubricant density.
- 465 Centrifugal feature:**
This subclass is indented under subclass 462. Subject matter wherein lubricant is impelled by specified centrifugal force or a slinger.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
168, for centrifugal feed of a lubricant to a railway car bearing.
- 466 Jet, baffle or valve:**
This subclass is indented under subclass 462. Subject matter having lubricant jet means, a specified lubricant baffle or a lubricant valve.

- 467 Cooling by lubricant:**
This subclass is indented under subclass 462. Subject matter wherein the lubricant also lowers the temperature of the bearing to keep the temperature of the bearing from getting too high.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
313, for cooling by lubricant of a plain bearing.
476, for other types of cooling of the bearing.
900, for cooling or heating not designated in the regular schedule.
- 468 Oil mist feature:**
This subclass is indented under subclass 462. Subject matter including means for producing an oil mist.
- 469 Porous or wick structure:**
This subclass is indented under subclass 462. Subject matter wherein the lubricant can be retained in pores of a material or retained in a wick type material.
- 470 Cage structure:**
This subclass is indented under subclass 462. Subject matter wherein lubricating is facilitated by specified cage structure.
- 471 With pressure or suction means:**
This subclass is indented under subclass 462. Subject matter including specified means to established pressure or suction so as to move lubricant.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
465, if the means operates by centrifugal force.
472, for an impeller without specified structure for creating pressure or suction.
- 472 Impeller:**
This subclass is indented under subclass 462. Subject matter wherein the bearing, per se, includes structure for impelling lubricant.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
465, for a centrifugal impeller.
471, for reciting the creation of pressure or suction.
- 473 Reservoir, filter or lubrication circuit structure:**
This subclass is indented under subclass 462. Subject matter including specified reservoir, filter, or lubricant circuit structure.
- 474 Lubrication port:**
This subclass is indented under subclass 462. Subject matter including a specified lubrication port.
- 475 In race:**
This subclass is indented under subclass 474. Subject matter wherein the port is in a race.
- 476 With cooling, heating or insulating:**
This subclass is indented under subclass 456. Subject matter including means to control the temperature of the bearing, e.g., raise or lower the temperature, or shield the bearing from heat, cold or electrical charge.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
317, for cooling a plain bearing.
467, for cooling an antifriction bearing by lubricant.
900, for cooling or heating not designated in the regular schedule.
- 477 With specified seal:**
This subclass is indented under subclass 456. Subject matter including means for preventing matter from entering into, passing through, or escaping from the bearing.
- (1) Note. The bearing can be in a support means and the seal acting at the juncture of adjacent elements.
- (2) Note. A broadly recited seal, e.g., bearing seal, etc., which recites no structure is classified on the basis of the bearing structure, rather than here.

- SEE OR SEARCH THIS CLASS, SUB-CLASS:
607, for antifriction thrust bearing seal.
- SEE OR SEARCH CLASS:
100, Presses, subclass 175 for a rotary press having a guard for the roll bearing.
277, Seal for a Joint or Juncture, for a generic sealing means or process, subclasses 345+ for a seal between relatively movable parts (i.e., a dynamic seal).
- 478 Centrifugal loading or slinging; fluid seal:**
This subclass is indented under subclass 477. Subject matter wherein (a) the seal is loaded by centrifugal force generated by the seal itself; or (b) wherein a sealing gas or liquid is itself the barrier to fluid or particle passage.
- 479 Pressure establishing or loading:**
This subclass is indented under subclass 477. Subject matter wherein (a) means are provided to create a pressure condition within the sealing assembly, or (b) wherein means are provided whereby the seal is loaded responsive to pressure.
- 480 Labyrinth:**
This subclass is indented under subclass 477. Subject matter wherein a seal comprises a succession of baffles which define a slight clearance with each other or with an additional member, providing a series of throttling zones to impede the passage of fluid or particles.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
144, for a labyrinth seal with a plain.
478, for a fluid seal.
- 481 Relatively rotatable radially contacting:**
This subclass is indented under subclass 477. Subject matter wherein the seal comprises relatively rotatable elements presenting complementary sealing surfaces normal to or at a nonzero angle to the axis of rotation.
- (1) Note. These are sometimes called "face seals".
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
139+, for a relatively rotatable radially contacting seal with a plain bearing.
- 482 Resilient sliding surface material:**
This subclass is indented under subclass 481. Subject matter wherein one of the sealing surfaces comprises a resilient material.
- 483 Radially contained packing with axially acting follower:**
This subclass is indented under subclass 477. Subject matter wherein the sealing assembly comprises a chamber and an element coaxial therewith, a packing within the chamber and a follower exerting an axial thrust on the packings and biasing it radially into sealing engagement with the chamber and coaxial member.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
149, for a plain bearing with a radially contained seal with axially acting follower.
- 484 Lip seal:**
This subclass is indented under subclass 474. Subject matter wherein the seal comprise a resilient element extending radially and resiliently contacting a relatively rotating surface parallel to the axis of rotation, via an annular surface thin in comparison to the rest of the resilient element and axially displaced from the main portion of the element, at least in operation.
- 485 Radially outward lip:**
This subclass is indented under subclass 484. Subject matter where the lip seal extends radially outwardly from the axis of rotation.
- 486 Plural lips:**
This subclass is indented under subclass 484. Subject matter wherein there is more than one lip in a single seal.
- (1) Note. A plurality of lip seals is classified on the basis of individual seal structure.

487 Radially opening U-shaped retainer:

This subclass is indented under subclass 477. Subject matter wherein the seal includes a retainer U-shaped in cross-section and opening in a radial direction, with a seal element located in the retainer and extending radially beyond it to contact a concentric relatively rotating surface.

488 Flange small clearance:

This subclass is indented under subclass 477. Subject matter wherein the seal comprises a radially extending annular flange approaching but not contacting a relatively rotating member so as to substantially but not completely close an annular opening.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

480, for plural flanged seals.

489 O-ring or end cap seal:

This subclass is indented under subclass 477. Subject matter wherein the seal (a) is a resilient-ring or (b) is an annular disc sealing off one entire end of a bearing, from the outer race to the axis of rotation.

(1) Note. An end cap seal may comprise a small venting hole.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

152, for a plain bearing with an O-ring seal.

490 Ball bearing:

This subclass is indented under subclass 456. Subject matter wherein the rolling friction is a spherical element.

(1) Note. This and indented subclasses includes bearing assemblies or specified bearing components.

(2) Note. A spherical element has every part of its bearing surface equally distant from the center.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

609, for a thrust ball bearing.

491 Ball structure:

This subclass is indented under subclass 490. Subject matter wherein structure other than sphericity, e.g.m hollowness, holes, or minor appendages, of a substantially spherical ball, is specified.

(1) Note. A ball surface does not have to be continuous to be placed here but all surface contact areas must be an equal distance from the ball center.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

565, for roller structure which may have a curved surface but all surface contact area are not an equal distance from the roller center.

492 Ball or race composition or material:

This subclass is indented under subclass 490. Subject matter wherein the composition, e.g., density or porosity; or material of a ball or race is specified.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

907, Cross-Reference Art Collection for bearing material not provided in the regular schedule.

493 Temperature compensation:

This subclass is indented under subclass 490. Subject matter including means for compensating for changes brought about by a change in temperature.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

557, for a roller bearing with temperature compensation.

605, for a thrust bearing with temperature compensation.

905, for temperature compensation, not otherwise designated in the regular schedule.

494 Ball and roller bearings:

This subclass is indented under subclass 490. Subject matter including a roller bearing.

- SEE OR SEARCH THIS CLASS, SUB-CLASS:
452, for plural bearings one of which is a thrust bearing.
- 495 Self-aligning:**
This subclass is indented under subclass 490. Subject matter wherein the bearing is automatically adjustable to compensate for flexure, pivoting or axial displacement of a shaft.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
192+, for self-aligning of a plain bearing.
558, for self-aligning of a roller bearing.
612, for self-aligning thrust ball bearing.
- 496 Ball to larger spherical surface:**
This subclass is indented under subclass 495. Subject matter wherein the alignment is effectuated by means of interacting of a ball with a larger spherical surface.
- 497 Radially outer larger spherical surface:**
This subclass is indented under subclass 496. Subject matter wherein the larger spherical surface is located radially outside the ball.
- 498 Conforming spherical surfaces:**
This subclass is indented under subclass 495. Subject matter wherein alignment is effectuated by means of the interaction of mating concave and convex spherical surfaces of substantially the same radius of curvature.
- 499 Split race:**
This subclass is indented under subclass 490. Subject matter wherein a race is split circumferentially, so as to produce plural complete rings or split transversely, so as to produce one incomplete annulus (split ring).
- 500 With race adjustment means:**
This subclass is indented under subclass 499. Subject matter including means to move the position of a race.
- 501 Double split:**
This subclass is indented under subclass 499. Subject matter wherein both the inner and outer races are circumferentially split.
- 502 Split ring:**
This subclass is indented under subclass 499. Subject matter wherein the race is split transversely, so as to produce a break in the circumference of the annulus.
- 503 Fractured split:**
This subclass is indented under subclass 502. Subject matter wherein the split is by means of a fracture.
- 504 Plural rows balls:**
This subclass is indented under subclass 499. Subject matter comprising plural axially spaced rows of balls.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
512, for plural axially spaced balls with integral race.
- 505 One race only split:**
This subclass is indented under subclass 499. Subject matter wherein only one of the two ball races is a split race.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
500, for split race with adjustment means.
504, for plural rows of balls with a split race.
- 506 Inner race split:**
This subclass is indented under subclass 505. Subject matter wherein it is the radially innermost race that is split.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
500, for split race with adjustment means.
- 507 Slot for ball insertion:**
This subclass is indented under subclass 490. Subject matter wherein a slot is provided for inserting a ball.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
511, for an annular opening in a race for ball insertion.

- 508 With means for blocking slot:**
This subclass is indented under subclass 507. Subject matter including structure designed to block the slot under operating conditions.
- 509 Blocking by cage:**
This subclass is indented under subclass 508. Subject matter wherein the blocking structure is a ball cage.
- 510 Specified means facilitating assembly or disassembly:**
This subclass is indented under subclass 490. Subject matter wherein structure is designed to particularly facilitate assembly or disassembly of the bearing.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
537, for assembling a bearing in a support, mounting means, etc.
- SEE OR SEARCH CLASS:
29, Metal Working, subclasses 898+ for the method of assembling bearing structure and subclasses 724+ and 898+ for a machine or apparatus for assembling bearing structure.
- 511 Annular opening for ball insertion:**
This subclass is indented under subclass 510. Subject matter wherein the facilitating means includes an opening, around the entire circumference of a race, provided for ball insertion.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
507, for a slot in a race for ball insertion.
- 512 Plural axially spaced balls with integral race:**
This subclass is indented under subclass 490. Subject matter comprising plural axially spaced rows of balls rolling on an integral race on the same radial surface of that race.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
461, for plural axially overlapping rolling elements.
504, for plural rows of balls with a split race.
- 513+, for plural axially spaced rows of balls rolling on an integral race wherein the balls are on opposite sides of the integral race.
- 513 Specified bearing race structure:**
This subclass is indented under subclass 490. Subject matter having a particularly described race.
- (1) Note. A broadly recited race: e.g., race, bearing race; etc., which recites no structure or shape is placed where it would be otherwise classifiable.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
517, for an axially biased race.
- 514 Strictly conical contact surface:**
This subclass is indented under subclass 513. Subject matter wherein the race comprises a strictly, i.e., not rounded, conical surface on which the ball rolls.
- 515 Including radial race flange:**
This subclass is indented under subclass 513. Subject matter wherein the race comprises an integral radial flange.
- 516 Ball groove surface detail:**
This subclass is indented under subclass 513. Subject matter wherein the race structure comprises specified detail of the ball rolling groove surface, e.g., the slope of the groove, on which the ball rolls.
- 517 Axially biased race:**
This subclass is indented under subclass 490. Subject matter where a race is subjected to continual axial resilient force.
- 518** This subclass is indented under subclass 517. Subject matter wherein the force is supplied by means comprising a coil spring.
- 519 Adjustment means:**
This subclass is indented under subclass 490. Subject matter having means to move the position of the bearing.

- SEE OR SEARCH THIS CLASS, SUB-CLASS:
447, for eccentric features some of which may function as adjustment means.
- 520 Discrete spacing member:**
This subclass is indented under subclass 490. Subject matter wherein balls are maintained a determined distance apart in a race by a discrete element that is not connected from one ball to another.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
524, for a discrete spacing element connected to cage structure.
- 521 Ball spacer:**
This subclass is indented under subclass 520. Subject matter wherein the spacing element is spherical.
- 522 Roller spacer:**
This subclass is indented under subclass 520. Subject matter wherein the spacing element is a roller.
- 523 Cage structure:**
This subclass is indented under subclass 490. Subject matter having means for spacing balls in a race.
- 524 Including antifriction members:**
This subclass is indented under subclass 523. Subject matter wherein the cage structure includes balls or rollers that do not bear radial force.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
521, and 522, for discrete antifriction elements as spacers.
- 525 Wire cage:**
This subclass is indented under subclass 523. Subject matter wherein the cage is formed from wire.
- 526 Resilient feature:**
This subclass is indented under subclass 523. Subject matter wherein the cage comprises resilient structure.
- 527 Material, composition or laminate:**
This subclass is indented under subclass 523. Subject matter wherein the material or composition of the cage is specified, or it is formed as a laminate.
- 528 Fully circular aperture for ball:**
This subclass is indented under subclass 523. Subject matter wherein the cage comprises a fully circular aperture for receiving each ball.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
533, for a noncircular or nonconforming pocket for a ball.
- 529 Two circular apertures per ball:**
This subclass is indented under subclass 5228. Subject matter wherein there are two apertures for receiving each ball.
- 530 Plural elements joined to form an aperture:**
This subclass is indented under subclass 528. Subject matter wherein the aperture is formed by plural elements connected together.
- 531 U- or C-shaped slot:**
This subclass is indented under subclass 523. Subject matter wherein the race has a substantially U - or C - shaped opening for holding a ball.
- 532 Unitary uniform strip:**
This subclass is indented under subclass 531. Subject matter wherein the cage is formed from a single strip of material of uniform thickness.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
534, for a unitary strip with other than U- or C-shaped slots.
- 533 Entirely noncircular or nonconforming pocket:**
This subclass is indented under subclass 523. Subject matter wherein a ball-holding pocket either has no circular portions or has a circular portion but of a radius of curvature that does not conform with that of the ball.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
528, for a fully circular aperture for a ball.

- 534 Unitary member:**
This subclass is indented under subclass 523. Subject matter wherein the cage is formed from a unitary element of material.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
528+, for a fully circular aperture for a ball which may be a unitary strip.
532, for U - or C - shaped slots in a unitary strip.
- 535 Resilient support member:**
This subclass is indented under subclass 490. Subject matter having resilient means for supporting the bearing.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
581, for a resilient support member for a roller bearing.
- 536 Elastomer or plastic:**
This subclass is indented under subclass 535. Subject matter wherein the resilient means comprises an elastomer or plastic.
- 537 Assembling means:**
This subclass is indented under subclass 490. Subject matter wherein a bearing assembly and/or means to support the bearing comprise structure for allowing assembly.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
410, for assembling of a ball bearing.
- 538 Wedge means:**
This subclass is indented under subclass 537. Subject matter wherein the means comprises a tapered element for a wedging function.
- 539 Snap means:**
This subclass is indented under subclass 537. Subject matter wherein the means comprises a resilient structure that deforms during assembly.
- 540 Threaded sleeve:**
This subclass is indented under subclass 537. Subject matter wherein the means comprises a hollow tube or cylinder with threads on the inside or outside, e.g., a nut.
- 541 Radial set screw:**
This subclass is indented under subclass 537. Subject matter wherein the means comprises a threaded rod used for locking adjustable parts in position and the rod moves in a radial direction.
- 542 Bolt:**
This subclass is indented under subclass 537. Subject matter wherein the means comprises a rod and the end usually has a head.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
538, for wedging means with a bolt for securing the bearing.
541, for a radial set screw.
- 543 Fixed shaft and rotating outer member:**
This subclass is indented under subclass 490. Subject matter having a stationary axle and a radially outer element, rotatably supported thereon.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
416, for a rotary member with a plain bearing.
- 544 For hub:**
This subclass is indented under subclass 543. Subject matter wherein the hub is for a bicycle wheel.
- 545 For bicycle hub:**
This subclass is indented under subclass 544. Subject matter wherein the hub is for a bicycle wheel.
- 546 Outermost member cylindrical:**
This subclass is indented under subclass 543. Subject matter wherein the radially outer element has only a cylindrical periphery.
- (1) Note. The cylindrical member turns about a bearing assembly.
- 547 Outermost member grooved:**
This subclass is indented under subclass 543. Subject matter wherein the radially outer element has only a grooved periphery.

- (1) Note. The grooved member turns about a bearing assembly.
- 548 Roller bearing:**
This subclass is indented under subclass 456. Subject matter wherein the rolling friction is from a roller element, e.g., cylindrical, tapered, barrel-shaped, needle-shaped, etc.
- (1) Note. See Note to 491 for the definition of a ball bearing.
- 549 Fixed supporting roller:**
This subclass is indented under subclass 548. Subject matter wherein the bearing rotates on its own axis, but does not revolve about the axis of a fixed supporting means, and supports a large cylindrical member, e.g., a drum, for rotation.
- (1) Note. When more than a race is claimed classification is with the appropriate class. See the Search Class notes below.
- SEE OR SEARCH CLASS:
34, Drying and Gas or Vapor Contact With Solids, subclass 108 for rotary drums or receptacles.
241, Solid Material Comminution or Disintegration, subclass 178 of a roller supported receptacle.
248, Supports, subclass 130 for a rotating receptacle.
- 550 Toothed:**
This subclass is indented under subclass 548. Subject matter wherein the roller comprises teeth which mesh with other teeth in a race or other adjacent roller.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
598, for a toothed thrust roller bearing.
- 551 Discrete circumferential or axial spacer:**
This subclass is indented under subclass 548. Subject matter wherein (a) rollers are maintained a determined circumferential distance apart in there ace by discrete elements that are not connected from one ball to another; or (b) wherein discrete elements axially spaced individual rollers.
- 552 Spaced by balls:**
This subclass is indented under subclass 551. Subject matter wherein load-bearing roller are located position by nonload-bearing balls.
- 553 Spaced by rollers:**
This subclass is indented under subclass 551. Subject matter wherein load-bearing roller are located position by nonload-bearing rollers.
- 554 With associated rings:**
This subclass is indented under subclass 553. Subject matter wherein the nonload0bearing rollers are related in position to one another by a plurality of rings.
- 555 Mating grooves and projections:**
This subclass is indented under subclass 553. Subject matter wherein annular grooves or projections on the load-bearing roller skate with annular projections or grooves on the nonload-bearing spacing rollers.
- 556 Hydraulic axial jacking:**
This subclass is indented under subclass 548. Subject matter wherein fluid pressure means is employed to initially position of "jack" a bearing assembly element.
- (1) Note. Where the hydraulic force remains in effect, i.e., for resilient support, see Class 384, subclass 99.
- 557 Temperature compensation:**
This subclass is indented under subclass 548. Subject matter including means for compensating for change brought about by a change in temperature.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
493, for a ball bearing with temperature compensation.
605, for a thrust bearing with temperature compensation.
905, for temperature compensation not designated in the regular schedule.
- 558 Self-aligning:**
This subclass is indented under subclass 548. Subject matter wherein the bearing is automatically adjustable to compensate for flexure, pivoting or axial displacement of a shaft.

- SEE OR SEARCH THIS CLASS, SUB-CLASS:
193+, for self-aligning of a plain bearing.
620, for self-aligning of a thrust roller bearing.
- 559 Means facilitating assembly or disassembly:**
This subclass is indented under subclass 548. Subject matter wherein structure is so designed to particularly aid in assembling or disassembling a bearing assembly.
- SEE OR SEARCH CLASS:
29, Metal Working, subclasses 898+ and 724+ for machines, apparatus and methods for effecting the assembly.
- 560 By cage or race structure:**
This subclass is indented under subclass 559. Subject matter wherein ring and associated receiving groove are used to facilitate assembly or disassembly.
- 561 By groove and ring:**
This subclass is indented under subclass 559. Subject matter wherein a ring and associated receiving groove are used to facilitate assembly or disassembly.
- 562 By threaded member:**
This subclass is indented under subclass 559. Subject matter wherein a threaded element, e.g., a nut and/or bolt, is used in assembly or disassembly.
- 563 Axially biased race or roller:**
This subclass is indented under subclass 548. Subject matter having means for resiliently urging a bearing race or roller in an axial direction.
- (1) Note. This is often referred to as "pre-loading".
- 564 Race end structure:**
This subclass is indented under subclass 548. Subject matter wherein a race has either integral flange or separate, e.g., and associated ring, axial end structure.
- 565 Roller structure:**
This subclass is indented under subclass 548. Subject matter comprising specified detail of the roller.
- SEE OR SEARCH CLASS:
492, Roll or Roller, for a roll, per se, not elsewhere provided for and see the search notes thereunder.
- 566 Helical feature:**
This subclass is indented under subclass 565. Subject matter wherein the roller comprises helical structure.
- 567 Hollow:**
This subclass is indented under subclass 565. Subject matter wherein the roller has bore passing entirely through it in the roller's axial direction.
- 568 Curved roller:**
This subclass is indented under subclass 565. Subject matter wherein the roller is entirely nonlinear in cross-section, excepting only portions of axial ends.
- 569 Race, liner or sleeve:**
This subclass is indented under subclass 548. Subject matter having an element that has specified structure in the bearing assembly of the roller bearing contact surface, of a liner, or of a sleeve.
- 570 Split ring:**
This subclass is indented under subclass 569. Subject matter wherein the element is split transversely, so as to produce a break in the circumference of the annulus.
- 571 Tapered race:**
This subclass is indented under subclass 569. Subject matter wherein a race is tapered in cross-section.
- 572 Cage structure:**
This subclass is indented under subclass 548. Subject matter having specified structure of an annular roller spacing element.

- 573 Wire, filament, segmented or surface treated:**
This subclass is indented under subclass 572. Subject matter wherein the cage is composed (a) of wire, (b) of filamentous material, (c) of separate annular or circumferential segments; or (d) wherein the cage surface is specially treated or coated.
- 574 Projecting into or through roller:**
This subclass is indented under subclass 572. Subject matter wherein the cage includes a portion entering into or through a recess or bore in the axial end of a roller.
- 575 Uniform sheet metal:**
This subclass is indented under subclass 572. Subject matter wherein the cage is fabricated of sheet metal of uniform thickness.
- 576 Nonmetallic:**
This subclass is indented under subclass 572. Subject matter wherein the cage comprises nonmetallic material.
- 577 Split ring or open slot:**
This subclass is indented under subclass 572. Subject matter wherein the cage annulus has a split in its circumference or roller retaining cavities in the cage are open on one side.
- 578 Nonunitary:**
This subclass is indented under subclass 572. Subject matter wherein the cage is composed of plural elements.
- 579 Bolted, welded or with spring:**
This subclass is indented under subclass 578. Subject matter wherein the elements of the cage are bolted or welded together; or the cage includes a specified spring.
- 580 Lip on transverse bar:**
This subclass is indented under subclass 572. Subject matter wherein a connecting piece of the cage, parallel to the axis of rotation of a bearing supported element, has a lip to help retain the roller.
- 581 Resilient support member:**
This subclass is indented under subclass 548. Subject matter which has a resilient supporting means.
- 582 Elastomer or plastic:**
This subclass is indented under subclass 581. Subject matter wherein the resilient means comprises an elastomer or plastic.
- 583 With adjustment means:**
This subclass is indented under subclass 548. Subject matter including means to move the bearing assembly, or part thereof.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
447, for eccentric features, some of which may function as adjustment means.
563, for an axially biased race.
- 584 Assembling means:**
This subclass is indented under subclass 548. Subject matter wherein a bearing assembly and/or means to support the bearing, comprise structure for allowing assembly.
- 585 Race fastening means:**
This subclass is indented under subclass 584. Subject matter having means to secure a roller bearing race in its appropriate location.
- SEE OR SEARCH CLASS:
403, Joints and Connection, appropriate subclasses for a joint between a rotary shaft and a device mounted thereon.
- 586 Fixed shaft and rotating outer member:**
This subclass is indented under subclass 548. Subject matter wherein a radially outer element rotates about a fixed shaft.
- SEE OR SEARCH CLASS:
295, Railway Wheels and Axles, subclass 10 for loose tire railway wheels.
305, Wheel Substitutes for Land Vehicles, subclass 7 for a rigid circular track provided with a wheel or roller within the track on a fixed shaft.
492, Roll or Roller, subclasses 16+ for a roll, per se, not elsewhere provided for, in which the outer surface of the roll is rotatable relative to its supporting shaft.

- 587 Outermost element cylindrical:**
This subclass is indented under subclass 586. Subject matter wherein the radially outermost element has only a cylindrical periphery.
- 588 Outermost element grooved:**
This subclass is indented under subclass 586. Subject matter wherein the radially outermost element has a grooved periphery..
- 589 For hub:**
This subclass is indented under subclass 586. Subject matter wherein a rotating outer member comprises structure relating to its hub.
- 590 Thrust bearing:**
This subclass is indented under subclass 445. Subject matter designed for loads imposed mainly in the direction of the axis of rotation.

SEE OR SEARCH THIS CLASS, SUBCLASS:
105, 121 and 420+, especially subclasses 420+ for similar type thrust bearings and see the search notes.
- 591 Vehicle center:**
This subclass is indented under subclass 590. Subject matter wherein the bearing transmits radial, axial and moment forces from an upper structure to the base of a vehicle center revolving table, as a bridge, turntable, etc.
- 592 Ball:**
This subclass is indented under subclass 591. Subject matter wherein the bearing is a ball bearing.
- 593 Roller:**
This subclass is indented under subclass 591. Subject matter wherein the bearing is a ball bearing.
- 594 Railway truck center bearing:**
This subclass is indented under subclass 590. Subject matter wherein the bearing is a center bearing for railway cars and is designed to transmit radial, axial and moment forces from a railway truck structure to a base.
- 595 Railway truck side bearing:**
This subclass is indented under subclass 590. Subject matter wherein the bearing is designed to be located between a car-truck bolster and a body bolster on a railway car, upon which bearing load is imposed when the car body tilts from a vertical as when the car is turning.
- 596 Ball:**
This subclass is indented under subclass 595. Subject matter wherein the bearing is a ball bearing.
- 597 Roller:**
This subclass is indented under subclass 595. Subject matter wherein the bearing element is a roller.
- 598 Toothed:**
This subclass is indented under subclass 597. Subject matter wherein the roller comprises teeth which mesh with other teeth in a race or other adjacent roller.

SEE OR SEARCH THIS CLASS, SUBCLASS:
550, for a toothed radial roller bearing.
- 599 With self-adjustment means:**
This subclass is indented under subclass 597. Subject matter including means for automatically moving the bearing assembly or a component thereof.
- 600 Assembling means:**
This subclass is indented under subclass 597. Subject matter having specified means to put together the bearing assembly.
- 601 Contaminant elimination; adjustment means:**
This subclass is indented under subclass 597. Subject matter having either means to eliminate deleterious fluid or solid material from the bearing, or prevent its entry; or to move the bearing assembly or component thereof.

SEE OR SEARCH THIS CLASS, SUBCLASS:
599, for self-adjustment means for a roller bearing.

- 602 Adjustment by shim:**
This subclass is indented under subclass 601. Subject matter wherein the adjustment means includes a spacing shim.
- 603 Spinning spindle:**
This subclass is indented under subclass 590. Subject matter wherein the bearing is designed to support a spindle, i.e., shaft, for bobbins in a spinning machine.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
227+, for a spinning spindle having plan bearings.
- 604 Different size rolling elements; spacers; non-circular array:**
This subclass is indented under subclass 590. Subject matter wherein rolling elements of different sizes are employed within the same set of races; or discrete circumferential spacers are employed between rolling elements; or wherein there is a noncircular array of rolling elements in the same radial plane.
- 605 Temperature compensation:**
This subclass is indented under subclass 590. Subject matter including means for compensating for changes brought about by a change in temperature.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
493, for a ball bearing with temperature compensation.
557, for a roller bearing with temperature compensation.
905, for temperature compensation not designated in the regular schedule.
- 606 Lubricating:**
This subclass is indented under subclass 590. Subject matter having means to lubricate the bearing.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
322+, for lubrication of plain bearings and see search notes.
- SEE OR SEARCH CLASS:
123, Internal-Combustion Engines, appropriate subclasses for lubrication means for lubrication of internal-combustion engine parts.
184, Lubrication, appropriate subclasses for lubrication means of general utility.
- 607 Seals:**
This subclass is indented under subclass 590. Subject matter having means for preventing matter from entering into, passing through or escaping from the bearing.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
130+, for seals for plain bearings.
477, for seals for antifriction radial bearings.
- SEE OR SEARCH CLASS:
277, Seal for a Joint or Juncture, for a generic sealing means or process, subclasses 345+ for a seal between relatively movable parts (i.e., a dynamic seal).
- 608 Concentric rolling members:**
This subclass is indented under subclass 590. Subject matter comprising a plurality of rows of antifriction elements in concentric relation.
- (1) Note. "Concentric" means about the same center point of a circle or sphere, but for purposes of this subclass it shall suffice if radially spaced rolling elements axially overlap.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
613, for plural axially spaced rows at balls.
619, for plural axially spaced roller bearing.
- 609 Ball bearing:**
This subclass is indented under subclass 590. Devices wherein the antifriction element is a ball.

- SEE OR SEARCH THIS CLASS, SUB-CLASS:
490, for a radial bearing with a ball element.
- 610 Single ball:**
This subclass is indented under subclass 609. Subject matter where only one ball takes the entire thrust load.
- 611 Resilient feature:**
This subclass is indented under subclass 609. Subject matter wherein the bearing assembly has a resilient element.
- 612 Self-aligning:**
This subclass is indented under subclass 609. Subject matter comprising means to align the bearing or bearing assembly automatically.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
495, for a self-aligning ball bearing.
- 613 Plural rows balls or tandem thrust:**
This subclass is indented under subclass 609. Subject matter having more than one axially spaced row of balls, which may or may not have means to distribute force among the rows.
- (1) Note. The rows of balls are often with a common race.
- 614 Cage structure:**
This subclass is indented under subclass 609. Subject matter having detailed means for spacing balls in a race.
- 615 Race structure:**
This subclass is indented under subclass 609. Subject matter having specified race detail.
- 616 Adjustment means:**
This subclass is indented under subclass 609. Subject matter comprising means to move the bearing assembly or a component thereof.
- 617 Assembling means:**
This subclass is indented under subclass 609. Subject matter having specified means to put together the bearing assembly.
- 618 Roller bearing:**
This subclass is indented under subclass 590. Subject matter wherein the rolling friction is from a roller element, e.g., a cylindrical tapered, barrel-shaped, or needle-shaped element.
- (1) Note. See subclass 491 for definition of a ball bearing
- 619 Roller structure or orientation; plural axially spaced rows or tandem thrust:**
This subclass is indented under subclass 618. Subject matter having detailed of a roller element; or the orientation of the rollers is specified; or having two or more axially spaced roller rows which may or may not have means to distribute force among the rows.
- 620 Resilient feature; adjustment or self-alignment means; assembling means:**
This subclass is indented under subclass 618. Subject matter having resilient means for supporting the bearing; or means to move or allow for automatic movement of the bearing or bearing assembly or a component thereof; or specified means to put together the bearing assembly.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
558, for a self-aligning roller bearing.
- 621 Race and cage structure:**
This subclass is indented under subclass 618. Subject matter having detailed means for spacing rollers in a race and in addition details of a race.
- 622 Race structure:**
This subclass is indented under subclass 618. Devices having specified race detail.
- 623 Cage structure:**
This subclass is indented under subclass 618. Subject matter having specified means for spacing rollers in a race.
- 624 BEARING SAFETY OR SELF-CLEANING MEANS:**
This subclass is indented under the class definition. Subject matter wherein specified means are provided to protect either a bearing or a

human, or to remove containment matter automatically.

625 BEARING-SURFACE TREATMENT:

This subclass is indented under the class definition. Subject matter wherein bearing surface has been specially treated to improve its anti-friction or wear-resisting properties.

- (1) Note. This subclass includes all special processes for treating bearing surfaces not otherwise provided for in the art.

SEE OR SEARCH CLASS:

29, Metal Working, subclass 89.5 for burning-in, wearing-in and oil burnishing and subclasses 898+ for methods of making bearing.

148, Metal Treatment, appropriate subclasses for processes of significant heat treatment of metal to modify or maintain the internal physical structure (i.e., microstructure, etc.) or chemical property of metal, and appropriate subclasses for processes of reactive coating of metal substrates wherein an external agent combines with the metal substrate to form a coating thereon containing an element from said substrate.

205, Electrolysis: Processes, Compositions Used Therein, and Methods of Preparing the Compositions, subclasses 80+ for electrolytic coating processes.

216, Etching a Substrate: Processes, for treating a bearing surface including a chemical etching operation.

626 SHIM FOR BEARING:

This subclass is indented under the class definition. Subject matter wherein a piece of material is used to take up wear or adjust parts of a bearing.

627 MISCELLANEOUS:

This subclass is indented under the class definition. Subject matter not provided for above.

CROSS-REFERENCE ART COLLECTIONS

900 Cooling or heating:

Apparatus, or fluid to raise, or lower the temperature of a bearing.

901 Floating bushing:

This art principally includes rotationally free bushings between an inner and an outer bearing, but also includes axial or radial freedom.

902 Porous metal member:

The metal member has pores through which lubricant may pass or in which lubricant can be impregnated.

903 Retaining ring:

The ring is for holding bearing parts together.

SEE OR SEARCH THIS CLASS, SUBCLASS:

561, for assembly of a bearing using a ring.

904 Propeller shaft outer bearing:

The bearing is where the propeller shaft passes through the hull of a ship or boat.

905 Temperature compensation:

The Bearing is designed so that deviation due to temperature will be counteracted, compensated for, etc.

- (1) Note. Temperature compensation features provided for in the regular schedule should not be cross-referenced here.

SEE OR SEARCH THIS CLASS, SUBCLASS:

493, for a ball bearing with temperature compensation.

557, for a roller bearing with temperature compensation.

605, for a thrust bearing with temperature compensation.

905.1 Cup-shaped bearing:

A bearing in the form of a hollow cylinder with a closed end.

906 Antirotation key:

The bearing assembly has a nonattaching element preventing rotation of one element relative to another.

907 Bearing material or solid lubricant:

Specified bearing material and/or a solid lubricant.

- (1) Note. Some bearing materials are referred to in the literature as solid lubricants, and vice versa.

907.1 Jewel, glass, ceramic or carbon:

A material comprising precious or semiprecious stones, ceramic material, or a form of carbon.

908 Nylon or polytetrafluorethylene:

Specified bearing material and/or a solid lubricant.

909 Plastic:

This subclass is indented under subclass 907. Nonmetallic high molecular weight bearing elements not provided for in

910 Powders:

The material, usually a solid lubricant, is in powder form.

911 Including fiber:

The bearing member includes fiber.

912 Metallic:

the bearing member is wholly or predominantly composed of metal.

913 Metallic compounds:

A metal in chemical compound with another material, for example, Molybdenum disulfide, not found above.

- (1) Note. If the metallic compound is in fused, vitreous, or crystalline form, (e.g., Aluminum Oxide as sapphire), then it would be found in subclass 907.1 above, and not cross-referenced here.

END