

**CLASS 403, JOINTS AND CONNECTIONS****SECTION I - CLASS DEFINITION**

This is the generic class of connections between two or more rigid or semirigid members at substantially a single locus when (I) the members cooperate to form a utilitarian structure or assemblage; (II) either (a) an intrinsic property of at least one of the members is utilized in effecting the connection, (b) the members are related to each other in a particular manner (e.g., angularly), (c) a portion of one member reorients relative to a portion of the other member about the connection, or (d) all other connections between such members for which no other provisions have been made; and (III) the members constitute either (a) stock elements having such general and varied utility as to be identifiable with no particular art until connected (e.g., framework members which transmit force or torque to each other), (b) components of an assemblage which have the same utility before and after connecting but which, when connected, interact with each other to accomplish a common task and no longer have any independent operation (e.g., rigid, interconnected torque or thrust transmitting rods), (c) subcomponents of an assemblage, at least one of which has utility only when interacting with the other to accomplish a specific task (e.g., windshield wiper and windshield), or (d) components having independent utility, but which, when connected, cooperate to change, enhance, expand or make interdependent their operation (e.g., articulated members).

This is also the generic class of connections between the ends of a single rigid or semirigid member at substantially a single locus when (I) the connected member forms a utilitarian structure or assemblage; (II) either (a) an intrinsic property of the member is utilized in effecting the connection, (b) the ends of the member are related to each other in a particular manner (e.g., lapped), (c) portions of the member reorient relative to each other about the connection, or (d) a tool driven, tool deformed, or destructively releasable fastening means is utilized; and (III) the member constitutes either (a) a stock element having such general utility as to be identifiable with no particular art until connected or (b) a component of a larger assemblage which component has the same utility before and after connection, but which when connected accomplishes its task in a varied manner.

This is also the generic class of connections between a flaccid member (e.g., cable) and a rigid or semirigid member at substantially a single locus when (I) the connected members form a utilitarian structure or assem-

blage, and (II) in effecting the connection either (a) an intrinsic property of the member is utilized or (b) a tool driven, tool deformed, or destructively releasable (i.e., the only method of releasing it is to destroy it) fastening means is utilized.

In addition, this is the generic class for connecting or fastening means, per se, when the means is (I) disclosed as used solely with a connection proper for this class and (II) limited by either its structure (e.g., an L-shaped nail plate) or configuration (e.g., multiple fasteners in a specific pattern) to a very restricted range of use (i.e., the means lacks general utility).

- (1) Note. The term "member" as used in this class refers to the primary members which are connected and each may consist of one part or a plurality of parts. Many connections involve the use of a plurality of elements each of which may be connected to a member or to another element. However, unless each of the connections involved is coordinate with the others in the system, the elements are not referred to as "members" but as "components". For example, a bolt connecting two abutting members bridging the juncture of two packed members is not considered a member, but a bolt independently joined to each of two spaced members is itself a member. Likewise, a plurality of bolts joining the same two members at the same locus are not members but components.
- (2) Note. The expression "utilitarian structure or assemblage" denotes an entity which has a function and identity of its own apart from that of its individual members. Connections between members which, when connected, do not form a utilitarian device but which are connected merely for convenience or storage are not classified in this class (403). See Lines With Other Classes and Within This Class, below, for the appropriate classification.
- (3) Note. Patents issued prior to 1931 have not in all instances been classified by their claimed disclosure, so the placement of these older patents does not necessarily indicate lines of classification.
- (4) Note. A claim which recites only as much of the structure of a member as is necessary

to effect its connection may be included within this class, and, in general, the mere naming of a member will not cause classification outside this class. However, if details of a member which go beyond those which are used in effecting the connection are included, classification will be based on the member unless specific provision is made in this class (403). In the situation of a single member with connected ends, the broad recitation of a “loop” or equivalent terminology will not cause classification outside this class, since such configuration is necessary to align the ends to effect their connection. However, a single member and means connecting its ends which allow the size of the closed member (i.e., loop) to be adjusted, are elsewhere classifiable.

- (5) Note. In interpreting this definition, the following examples of intrinsic properties are given: (A) a modification, (e.g., threading) of at least one portion of a member at its connection point for other than mere reception of a fastener; (B) a particular shape or cross-section of at least one portion of a member at its connection point; and (C) a physical or chemical property of a member which has an effect on the connection either before or after the connection is effected, (e.g., fusion, affinity for certain adhesives, resistance to electrolytic action, flexibility, etc).
- (6) Note. The expression “utilitarian structure or assemblage” denotes an entity which has a function and identity of its own apart from that of its individual elements and subcomponents of such entity. Connections between elements which, when connected, do not form a utilitarian device but which are connected merely for convenience or storage are not classified in this class (403) but will be formed in the appropriate class which provides for the particular assemblage.
- (7) Note. If otherwise proper for this class, a connection between two ends of a single member wherein no structure of the member which is not necessary to effect the connection will be placed in this class unless specific provision is made elsewhere. Inventions which include any structure of

the member other than that necessary to effect the connection will be classified with the member or in a more general class. The broad recitation of a “loop” or equivalent terminology will not cause classification outside this class (403) since such configuration is necessary to align the ends (i.e., to effect the connection). See References to Other Classes, below.

## SECTION II - LINES WITH OTHER CLASSES AND WITHIN THIS CLASS

For processes of connecting see References to Other Classes, below.

For joints or connections in other classes, see References to Other Classes, below.

## SECTION III - REFERENCES TO OTHER CLASSES

### SEE OR SEARCH CLASS:

- 5, Beds, subclass 282.1 for means for connecting plural parts of a bed and subclasses 288+ for means for connecting a side rail with a corner part or the head board or footboard of a bed. (Joints or Connections in Other Classes)
- 14, Bridges, subclass 14 for a connection between elements of a bridge truss and subclass 22 for a connection between a cable and another part of a suspension bridge. (Joints or Connections in Other Classes).
- 15, Brushing, Scrubbing, and General Cleaning, subclasses 191.1+ for means to secure a tuft, knot, or bunch of brush or broom material in a socket or a hole, 250.31+ for an optical-member-attachable cleaner having a specific coupling or mounting for a driving means, or between a cleaning element and means linking it to the driving means, 250.352 for an optical-member-attachable cleaner specific arm structure having a pivot between a hub and extended arm member, or a biasing assembly feature, or 250.46 for an optical-member-attachable cleaner element articulated structure having a specific joint, hinge, or pivot within the articulated structure. (Joints or Connections in Other Classes).
- 24, Buckles, Buttons, Clasps, etc., for details of a joint between a member made of flaccid material and another member when manually

- releasable fastening means connects them. A member which is sufficiently stiff as to be capable of resisting a distorting force to the extent necessary to enable it to maintain a shape or to be self-supporting over an appreciable length thereof is considered semirigid rather than flaccid and is proper for this class (403) if otherwise proper for Class 403. (Joints or Connections in Other Classes).
- 24, Buckles, Buttons, Clasps, etc., for details of a fastener and the joint between a member made of flaccid material (i.e., incapable of resisting a distorting force of the magnitude normally encountered over any substantial linear dimension without the aid of a reinforcing means) and another member. Examples of flaccid material are ordinary fabric, chain, and cord or rope. A member which is sufficiently stiff as to be capable of resisting such a force to the extent necessary to enable it to maintain a shape or to be self supporting over an appreciable length thereof is considered semirigid rather than flaccid and is proper for this class (403) if otherwise proper for Class 403. (See the Class Definition, (7) Note above).
- 27, Undertaking, subclass 17 means for joining the lid or cover to the body of a casket. (Joints or Connections in Other Classes)
- 29, Metal Working, subclass 237 for an apparatus for connecting or disconnecting a coupling and a conduit.
- 29, Metal Working, subclass 180 for an interlocking joint between components of metal stock, blanks, or indeterminate articles. (Joints or Connections in Other Classes).
- 29, Metal Working, subclasses 592+ for processes of connecting in general. (Processes of Connecting).
- 30, Cutlery, appropriate subclasses for means for joining plural parts of a cutting implement.
- 33, Geometrical Instruments, appropriate subclasses for means for joining plural parts of a geometrical instrument. (Joints or Connections in Other Classes).
- 42, Firearms, subclasses 75.01+ for means for joining the stock and the barrel of a firearm.
- 52, Static Structures (e.g., Buildings), appropriate subclasses for a joint or connection peculiar to a building structure. (Joints or Connections in Other Classes).
- 52, Static Structures (e.g., Buildings), subclasses 741.1+ for processes of connecting structural elements of that class. (Processes of Connecting).
- 54, Harness for Working Animal, subclass 21 for means for fastening the ends of a horse collar together, subclasses 26+ for means for fastening hames together when in operative position, subclasses 30+ for means for fastening hames and tugs or traces, subclass 53 for means for attaching a trace to a whiffletree, subclass 59 for connecting means between a strap and a neck yoke, subclass 68 for means for fastening a pad to a harness part and subclass 85 for a metallic connecting piece employed on a strap halter. (Joints or Connections in Other Classes).
- 56, Harvesters, subclasses 433+ for means for knotting the ends of a band which passes around a bundle. (See the Class Definition, (7) Note above).
- 57, Textiles: Spinning, Twisting, and Twining, subclass 202 for a splice in strand structure wherein the splice is formed solely by a twisting or twining operation. (Joints or Connections in Other Classes).
- 59, Chain, Staple, and Horseshoe Making, subclasses 84+ for a chain link and subclass 95 for a swivel for use with a chain or similar article. (Joints or Connections in Other Classes)
- 63, Jewelry, subclass 4 for a bracelet comprised of a series of connected links or units and means for uniting the ends of said bracelet, subclasses 15.1+ for means for securing plural annular finger rings together and subclass 15.7 for a finger ring comprising a plurality of arcuate segments secured together to form an annular member.
- 73, Measuring and Testing, subclass 201 for means for connecting a volume or rate of flow meter into a pipe line or a meter box. (Joints or Connections in Other Classes).
- 74, Machine Element or Mechanism, subclass 470 for a resilient connection in a control lever or linkage system. (Joints or Connections in Other Classes).
- 83, Cutting, subclasses 698.11+ for a joint or connection between (1) a cutting tool and its support, (2) a plurality of cutting elements or (3) two portions of a cutting tool support. (Joints or Connections in Other Classes).
- 87, Textiles: Braiding, Netting, and Lace Making, subclasses 3+ for a process of intertwining strands. (Processes of Connecting).
- 100, Presses, subclasses 29+ for apparatus for tensioning a binder and securing spaced portions thereof together while so tensioned and subclass 33 for apparatus for securing spaced por-

- tions of a binder together. (See the Class Definition, (7) Note above).
- 104, Railways, subclass 15 for apparatus for welding two sections of a railway track. (See the Class Definition, (7) Note above).
- 105, Railway Rolling Stock, subclasses 8.1+ for a yieldable or frictional connection between adjacent cars or elements of a train, subclass 40 for a flexible joint between boiler sections of a steam locomotive, subclass 47 for an articulate or flexible pipe connection between relatively movable parts of a steam locomotive, subclass 199.1 for a connection between a railway car body and a truck, subclasses 200+ for a connection between a truck bolster and a truck or between a truck bolster and a body bolster and subclass 424 for a freight car having special joint fixtures to prevent the leakage of granular material. (Joints or Connections in Other Classes).
- 109, Safes, Bank Protection, or a Related Device, subclass 79 for a joint or connection in the wall or panel of a safe or related device. (Joints or Connections in Other Classes).
- 114, Ships, subclass 86 for a process of filling or closing the seams between planking, etc., of a ship.
- 114, Ships, subclass 86 for means for filling or closing the seams between the planking of a ship, subclass 88 for means for uniting components of a ship and subclasses 97+ for connections between a ship spar and a mast or yard. (Joints or Connections in Other Classes)
- 122, Liquid Heaters and Vaporizers, subclass 365 for means for connecting a drum and a header or water tube and subclass 511 for couplings for tubes and flues and connections between tubes or flues and a boiler. (Joints or Connections in Other Classes).
- 126, Stoves and Furnaces, subclass 98 for a joint between components of a stove and subclass 119 for a joint in a furnace or casing. (Joints or Connections in Other Classes).
- 128, Surgery, subclasses 121.1+ for means for joining a pad to the pad carrier of a truss. (Joints or Connections in Other Classes)
- 131, Tobacco, subclass 225 for a joint or connection between components of a tobacco user's appliance. (Joints or Connections in Other Classes).
- 135, Tent, Canopy, Umbrella, or Cane, subclasses 29+ for means for connecting the ribs and stretchers to the notches and runners, respectively, of an umbrella. (Joints or Connections in Other Classes).
- 138, Pipes and Tubular Conduits, subclasses 100+ for a tubular conduit comprising a plurality of tubular members connected in break joint relation, subclass 120 for a flexible tubular conduit comprising a plurality of jointed, relatively movable sections and subclass 155 for a tubular conduit comprising a plurality of rigidly joined sections. (Joints or Connections in Other Classes).
- 140, Wireworking, subclasses 111+ for processes of joining wire. (Processes of Connecting)
- 140, Wireworking, subclass 101 for a wire knotting device and subclasses 111+ for apparatus for joining or uniting wires. (Joints or Connections in Other Classes).
- 144, Woodworking, subclasses 344+ for a process of joining wooden members wherein a wood-working step is involved. (Processes of Connecting).
- 152, Resilient Tires and Wheels, subclass 412 and 413 for a tire securing rim part connected to a wheel by a bayonet or threaded joint. (Joints or Connections in Other Classes).
- 156, Adhesive Bonding and Miscellaneous Chemical Manufacture, appropriate subclasses for processes of adhesive bonding. (Processes of Connecting).
- 160, Flexible or Portable Closure, Partition, or Panel, subclasses 229+ for edge-to-edge connected strips, slats, or panels. (Joints or Connections in Other Classes).
- 174, Electricity: Conductors and Insulators, appropriate subclass for means for joining a plurality of conductors and/or insulators wherein an electrical characteristic of either a member or the connection is involved. (Joints or Connections in Other Classes).
- 191, Electricity: Transmission to Vehicles, subclasses 60+, 60.2, 60.3, 60.4, and 60.5 for a joint between a trolley pole and head. (Joints or Connections in Other Classes).
- 213, Railway Draft Appliances, subclasses 75+ for a draft coupling between a plurality of elements of a railway train. (Joints or Connections in Other Classes).
- 217, Wooden Receptacles, subclass 65 for a joint between components of a wooden box and subclass 96 for a joint between components of a wooden barrel. (Joints or Connections in Other Classes).
- 220, Receptacles, subclasses 75+ for means for joining receptacle sections. (Joints or Connections in Other Classes).

- 229, Envelopes, Wrappers and Paperboard Boxes, subclass 5.6 for a crimped seam between the end structure and side wall of a paper receptacle, subclass 5.7 for a side wall and end structure of a paper receptacle secured by separate fastening means and subclass 48 for seam between parts of a paper receptacle. (Joints or Connections in Other Classes).
- 231, Whips and Whip Apparatus, subclass 6 for a joint between components of a whip.
- 238, Railways: Surface Track, subclasses 151+ for a means for joining two sections of railway track and subclasses 310+ for fastening means for railway track structure. (Joints or Connections in Other Classes).
- 244, Aeronautics and Astronautics, subclass 131 for a joint or connection peculiar to aircraft, or incorporated into aircraft structure. (Joints or Connections in Other Classes).
- 245, Wire Fabrics and Structure, subclass 10 for edge, selvage or seam structures of wire fabrics. (Joints or Connections in Other Classes)
- 248, Supports, appropriate subclasses for means for joining plural components of a support. (Joints or Connections in Other Classes).
- 249, Static Molds, subclasses 98+ for molds for forming a product having means for interconnection with a portion of a like product. (See the Class Definition, (7) Note above).
- 254, Implements or Apparatus for Applying Pushing or Pulling Force, appropriate subclasses for means for joining plural components of a pushing or pulling implement or means for joining a pushing or pulling implement with a device with which it is used. (Joints or Connections in Other Classes).
- 256, Fences, subclasses 47+ for a connection between a strand of wire fence and a post or upright and subclasses 65.01+ for a connection between a fence rail and an upright. (Joints or Connections in Other Classes).
- 267, Spring Devices, subclasses 54+ for a connection between the end of a leaf spring and another member and subclass 179 for means for joining a coil spring element and an end thrust member. (Joints or Connections in Other Classes).
- 278, Land Vehicles: Animal Draft Appliances, subclass 49 for a thill joint, subclasses 52+ for means for joining a thill to an axle, subclasses 95+ for means for joining plural elements of a whiffletree or for joining a whiffletree to a pole, thill, or forward part of the vehicle and subclasses 121+ for means for joining a neck yoke to a pole. (Joints or Connections in Other Classes).
- 279, Chucks and Sockets, appropriate subclasses for means for joining a holder and an object such as a tool, workpiece, or rodlike body wherein the gripping means is on or within the holder. (Joints or Connections in Other Classes)
- 280, Land Vehicles, subclasses 400+ for an articulate connection between two land vehicles. (Joints or Connections in Other Classes)
- 285, Pipe Joints or Couplings, appropriate subclasses for a joint between two pipe sections or between a pipe and a plate. (Joints or Connections in Other Classes)
- 289, Knots and Knot Tying, subclasses 2+ and 17 for a device for forming a knot in an elongated cord, strand, or strip. (See the Class Definition, (7) Note above).
- 289, Knots and Knot Tying, subclass 1.2 for an interlacement of portions of one or more elongated flexible elements. (Joints or Connections in Other Classes).
- 292, Closure Fasteners, appropriate subclasses for means for securing a closure element in locked or adjusted position. (See the Class Definition, (7) Note above)
- 293, Vehicle Fenders, subclasses 99+ for means for connecting the parts of a bumper assembly together or to a vehicle. (Joints or Connections in Other Classes).
- 294, Handling: Hand and Hoist-Line Implements, subclasses 86.4+ for means for securing a load to a hoist line. (See the Class Definition, (7) Note above).
- 295, Railway Wheels and Axles, subclasses 15+ for means for securing a tire to the body of a railway wheel, subclasses 39+ for means for coupling plural sections of a railway axle for movement independent of each other and subclass 43 for means for joining a railway wheel to an axle. (Joints or Connections in Other Classes).
- 296, Land Vehicles: Bodies and Tops, subclasses 29+ for a joint in the frame of a land vehicle body and subclasses 121+ for means for securing the elements of a vehicle top to its body. (Joints or Connections in Other Classes).
- 301, Land Vehicles: Wheels and Axles, subclass 11.1 for means for securing a detachable tire carrying rim to a wheel body, subclasses 58 and 67 for a connection between the spoke and felly of a wheel, subclasses 59, 74, and 80 for a connection between the hub and spoke of a wheel, subclasses 87 for means for securing a

- nonresilient tire to a wheel, subclasses 99 for means for joining the adjacent ends of felly sections and subclass 111.01 for means for securing a wheel to an axle. (Joints or Connections in Other Classes).
- 312, Supports: Cabinet Structure, subclass 111 for a joining or connecting means for securing sectional units of a cabinet together, subclass 140 for a joint or connection between glass walls of a show case. (Joints or Connections in Other Classes).
- 313, Electric Lamp and Discharge Devices, subclasses 144+ for joint structure between components of a spark plug. (Joints or Connections in Other Classes).
- 333, Wave Transmission Lines and Networks, subclass 98 for means involving electrical structure for connecting a plurality of wave guide components. (Joints or Connections in Other Classes).
- 335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 276 for a pivoted armature mounting means and see the notes thereunder. (Joints or Connections in Other Classes).
- 336, Inductor Devices, subclass 210 for an inductor core comprising plural parts and means for connecting the parts and see the notes thereunder.
- 351, Optics: Eye Examining, Vision Testing and Correcting, subclasses 140+ for means for joining plural parts of spectacles or eyeglasses. (Joints or Connections in Other Classes).
- 401, Coating Implements With Material Supply, subclass 251 for means for joining plural parts of a coating implement such as a fountain pen having a reservoir and feeder. (Joints or Connections in Other Classes).
- 411, Expanded, Threaded, Driven, Headed, Tool-Deformed, or Locked-Threaded Fastener, appropriate subclasses for members joined by a fastener such as a bolt, screw, rivet, nail, etc., wherein the members are modified only to provide an accommodation for the fastener, e.g., a preformed aperture, etc. See subclasses 81+ for a threaded fastener (i.e., a bolt or nut) and means for restricting the rotation thereof relative to a coating substructure; included therein are connections between two or more members (e.g., joints between sections of a railroad rail) wherein the only specificity as to the members relates to the manner in which they are adapted to serve as the coating substructure for the bolts or nuts involved in the connection. (See the Class Definition, (7) Note above).
- 415, Rotary Kinetic Fluid Motors or Pumps, subclasses 134+ for a thermal expansion joint in a rotary kinetic fluid motor or pump, subclass 140+ for a movably mounted blade portion, runner or shaft of a rotary kinetic fluid motor or pump and subclasses 148+ for a selectively adjustable vane or working fluid control means of a rotary fluid motor or pump. (Joints or Connections in Other Classes).
- 416, Fluid Reaction Surfaces (i.e., Impellers), subclass 2 for a frangible or fusible connection between an impeller and its support, subclasses 131+ for an articulate or flexible connection between an impeller and its support and subclasses 204+ for means for attaching a working member of an impeller to its hub or shaft. (Joints or Connections in Other Classes).
- 418, Rotary Expansible Chamber Devices, subclasses 253+ for means for connecting a plurality of vanes in a rotary expansible chamber device. (Joints or Connections in Other Classes).
- 425, Plastic Article or Earthenware Shaping or Treating: Apparatus, subclass 108 for apparatus comprising means to shape fluent material against the juxtaposed terminal portions of tubular or rodlike preforms to unite the preforms. (See the Class Definition, (7) Note above).
- 433, Dentistry, subclasses 180+ for denture to abutment tooth connections; subclasses 191+ for tooth to denture connections; and subclasses 208+ for tooth facing to backing connections. (see the Class Definition, (7) Note above).
- 439, Electrical Connectors, appropriate subclasses for an electrically conductive connector between conductors of electricity.
- 446, Amusement Devices: Toys, subclasses 85+ for joints and connections between elements of constructions toys, connecting portions of forms or dolls. (Joints or Connections in Other Classes).
- 464, Rotary Shafts, Gudgeons, Housings, and Flexible Couplings for Rotary Shafts, appropriate subclasses for a coupling between rotary torque transmitting members which facilitates relative movement between the members, or facilitates the coupling of rotary torque transmitting members having misaligned rotational axes. (Joints or Connections in Other Classes).

473, Amusement Devices: Games, subclasses 305+ for a joint between the head and shaft of a golf club. (Joints or Connections in Other Classes)

## SECTION IV - GLOSSARY

### COMPONENT

An element or a characteristic of a member used in effecting a connection.

### CONNECTOR

A retainer which serves to hold the members against separation.

### FASTENER

A retainer which serves to hold the members or one or more components against separation.

### FLACCID

Structure, which when subjected to a distortion force less than or equal to earth's gravitational force, is incapable (in at least one of its orientations) of maintaining its previous formational shape or being self supporting over any appreciable dimension.

### JOINT

A connection between two or more members which utilizes an intrinsic property of at least one of the members or wherein the members are related to each other in a particular manner.

### MEMBER

One of a plurality of structures which are connected. See (1) Note.

### RETAINER

A component comprising a discrete element which serves either to hold the members against separation or to hold another component in its proper position.

### RIGID

Structure which when subjected to a distortion force normally encountered within the environment (as defined by the disclosure), is capable of resisting this

force if applied to the structure in any orientation and maintaining its previous formational shape thereafter.

### SEMIRIGID

Structure which is both (a) capable of resisting distortion (i.e., maintaining its previous formational shape or being self-supporting over all appreciable dimensions) caused by a force applied to it in any of its orientation which is of a magnitude equal to or less than the earth's gravitational force, and (b) incapable of resisting distortion caused by a force applied to it which is normally encountered in its working environment (e.g., ductile or resilient structure).

### SUBCLASSES

- 1 This subclass is indented under the class definition. Structure comprising a freely rotatable connection and an alternatively engageable rigid connection between parts of an assembly joining a hub to a shaft wherein the rigid connection may be engaged to lock the hub and shaft against relative rotation or disengaged to permit the hub to free-wheel with respect to the shaft.

#### SEE OR SEARCH CLASS:

- 180, Motor Vehicles, subclasses 42, 49, 75, and 78 for floating axles.
- 192, Clutches and Power-Stop Control, appropriate subclasses for similar subject matter which may be engaged or disengaged while the hub is rotating.

- 2 This subclass is indented under the class definition. Structure wherein the members or the means connecting the members includes a distinct section or means having a characteristic by virtue of which the members or the means will fail ahead of any other part of the structure.

- 3 This subclass is indented under the class definition. Structure comprising a plurality of components wherein (1) the components may be reassembled in a different relationship to provide a joint of a different type, or to change the relationship of the members, or (2) the components can selectively accommodate one of a plurality of dissimilar members.

- 4** This subclass is indented under subclass 3. Structure wherein the components can be reassembled to change the orientation of the members.
- 5** This subclass is indented under the class definition. Structure wherein the connector comprises a closed chamber having at least one flexible wall and means to introduce fluid into said chamber to expand said wall into securing relationship with a member.
- 6** This subclass is indented under the class definition. Structure comprising an opening to a recess in the joint assembly for permitting access to a connecting means or an operator therefor located within said recess.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
376+, for an opening which merely allows for the insertion of a retainer and is essential to the joint.
- 7** This subclass is indented under subclass 6. Structure wherein the opening provides access to a threaded component of the joint, e.g., to a bolt or a threaded part of a member.
- 8** This subclass is indented under subclass 7. Structure wherein the opening is transverse to the axis of the threads of the threaded component.
- 9** This subclass is indented under subclass 6. Structure wherein the opening provides access to a joint component which is biased, either by inherent resiliency or by a separate means.
- 10** This subclass is indented under the class definition. Structure comprising an opening with a closure or having one or more separate parts which permit access to the interior thereof without disassembly of the joint.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
6+, for an opening which provides access to a connector or operator therefor.
- 11** This subclass is indented under the class definition. Structure comprising a feature for facilitating the assembly or disassembly of the joint, for preventing improper assembly, for protecting the joint, or joint parts prior to or during assembly, for facilitating repair of the joint or for preventing broken parts of a damaged joint from scattering, wherein the function of the feature is dormant in the assembled joint.
- (1) Note. The structure of many joints, for example, screw and cam joints inherently serve to draw the members into position. In order to be classified as an assembly or disassembly feature in this subclass, the feature must involve more than the structure essential to the assembling, or disassembling of the members.
- 12** This subclass is indented under subclass 11. Structure including a means for (a) temporarily supporting or holding in predetermined relation all or a portion of the joint components during assembly or disassembly, or (b) immobilizing a movable part to permit transportation, safe storage, assembly or disassembly, or (c) means protecting a joint component during assembly, disassembly, or transportation.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
17+, for an integral or attached handle.  
19+, for a joint combined with a tool or having means for engaging or accommodating a tool.
- 13** This subclass is indented under subclass 11. Structure comprising means for guiding the members to be joined into proper position or for guiding one or more joint components into proper relationship for completing the joint.
- 14** This subclass is indented under subclass 13. Structure wherein the means guides component, e.g., connector, gasket, dowel, etc., into proper relation for completing the joint.
- 15** This subclass is indented under subclass 11. Structure wherein the feature utilizes fluid pressure in performing its function.
- 16** This subclass is indented under subclass 11. Structure including means for applying a force directly to a joint component to disengage it from operative engagement with the rest of the assembly.



- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
321+, for means to disengage a latch.
- 17** This subclass is indented under subclass 11. Structure comprising a portion modified for grasping with the hand.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
321+, for a handle to operate a latch.
- 18** This subclass is indented under subclass 17. Structure wherein the grasping means operate a retaining element or a means blocking a retaining element from disengagement.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
321+, for a manipulable latch.
- 19** This subclass is indented under subclass 11. Structure comprising (a) distinct means for coaxing with or facilitating the use of a tool to assemble or disassemble the joint, or (b) a tool for assembling or disassembling the joint which tool is distinct from and dormant in the assembled joint.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
274+, for a deforming means used in effecting a joint wherein said means remains as a part of the joint or wherein said means or its equivalent is necessary to fabricate the particular joint.
- 20** This subclass is indented under subclass 19. Structure wherein the tool engaging means is associated with a latch or retainer.
- 21** This subclass is indented under subclass 11. Structure wherein a nut or bolt is separably secured in position on one of the members by means which holds it while it is being engaged with a complementary bolt or nut.
- 22** This subclass is indented under subclass 11. Structure including a bolt and a nut and means to prevent turning of either the bolt or the nut while the other is being turned.
- 23** This subclass is indented under the class definition. Structure comprising means in addition to the joint for protecting the joint or one of the connected members at the locus thereof, or for preventing contact between the joint or members and an extraneous structure.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
286, for a joint comprising a first connection bridged by a diverse connector wherein the connector may inherently act as a protector for the first connection.
- 24** This subclass is indented under the class definition. Structure comprising subject matter of this class forming a part of an assembly which also includes discrete subject matter of another class, only so much of the assembly being included as is necessary to associate the subject matter of the other class with that of this class.
- 25** This subclass is indented under subclass 24. Structure wherein one of the members is of polyhedral configuration, which configuration is utilized in construction of the joint.
- 26** This subclass is indented under the class definition. Structure comprising a separate coupling connecting two members, said coupling being journaled in a bearing which is distinct from the connection between the members.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
52+, for articulated connections in general.
- 27** This subclass is indented under the class definition. Structure comprising means for showing the condition of the joint, e.g., alignment, etc., the condition or position of a component thereof, or means facilitating inspection of the joint or a component thereof.
- 28** This subclass is indented under the class definition. Structure so constructed as to utilize a particular temperature response of a joint component in the forming of the joint or in the preservation of the joint under various temperature conditions.

- (1) Note. By particular temperature response is meant a characteristic which is peculiar to the material or configuration of the joint component under consideration and which is not common to material or structures in general. Thus, mere expansion or contraction of a component under varying temperature conditions is not considered a particular temperature response, but a component which expands or contracts, preferentially in a given direction or differentially under varying conditions, or the combination of two components having differential coefficients of expansion, fall within the scope of this subclass.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
 270+, for a joint formed by the solidification of a fusible material.  
 273, for members connected by a shrunk fit.
- SEE OR SEARCH CLASS:  
 313, Electric Lamp and Discharge Devices, subclasses 317+ for electric lamp and electric space discharge devices provided with lead-in wires sealed into the envelope of the lamp or discharge device and subclasses 334+ for the structure of nonmetallic electrodes or shields which are joined to a lead-wire or connector.
- 29** This subclass is indented under subclass 28. Structure wherein a component is interposed between and cooperates with members having diverse coefficients of expansion, said component having a coefficient of expansion intermediate those of the coacting members.
- 30** This subclass is indented under subclass 28. Structure wherein two members have different coefficients of expansion.
- SEE OR SEARCH CLASS:  
 428, Stock Material or Miscellaneous Articles, subclass 630 for composite metallic stock having an additional glass component.
- 31** This subclass is indented under the class definition. Structure including either (a) a retaining means actuated by fluid pressure responsive means or (b) means forming a distinct fluid pressure chamber to balance fluid pressure forces at plural points in the joint assembly.
- SEE OR SEARCH CLASS:  
 277, Seal for a Joint or Juncture, for a generic sealing means or process, subclass 926 for a seal having means to create a fluid pressure equilibrium at a joint or juncture.
- 32** This subclass is indented under the class definition. Structure comprising means for sensing some condition of the environment of the connection and exerting a controlling operation on the connection in response thereto.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
 28+, for a connection utilizing a thermal characteristic.  
 31, for a connection comprising a fluid pressure responsive component.
- 33** This subclass is indented under the class definition. Structure including means for moving one member relative to another, which means is independent of the connection between the members.
- 34** This subclass is indented under the class definition. Structure comprising means for handling or directing fluid or an article such as cable, etc., wherein the means and the fluid are not essential to the joint.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
 40, for a joint provided with fluid, e.g., lubricant, wherein there is no particular feature for retaining or conveying the fluid.  
 265+, for a molded joint wherein the fluid is essential to the joint.
- SEE OR SEARCH CLASS:  
 384, Bearings, subclass 322 for bearings modified for lubrication and see search notes.

- 35** This subclass is indented under subclass 34. Structure comprising a fluid reservoir or container external of the joint assembly.
- 36** This subclass is indented under subclass 34. Structure comprising a fitting communicating between the interior and exterior of the joint, said fitting including pressure responsive means to permit fluid to flow into, but not out of the joint.
- 37** This subclass is indented under subclass 34. Structure including a port or reservoir for conveying fluid to the joint.
- 38** This subclass is indented under subclass 37. Structure comprising members which are connected for relative movement.
- 39** This subclass is indented under subclass 38. Structure wherein the port communicates directly with the joint interface.
- 40** This subclass is indented under the class definition. Structure comprising a fluent material within the confines of the joint which material does not adhere securely to the members.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
34+, for a joint provided with means for conveying fluid to the joint or a particular feature for storing or holding the fluid.
- 41** This subclass is indented under the class definition. Structure comprising means in addition to the joint for preventing a sharp bend or kink in one of the members when subjected to a stress adjacent the joint by distributing the resulting curvature over a wide area thereby reducing the concentration of stress at any one point.
- 42** This subclass is indented under the class definition. Structure combined with auxiliary means other than connecting means and serving no connecting function, said auxiliary means (a) performing its function independently of the joint, or (b) serving to perfect the connecting means for its intended purpose.
- 43** This subclass is indented under the class definition. Structure comprising a connector having a rotatable part adapted to move two connected members simultaneously in opposite directions, or in the same direction at different speeds.
- SEE OR SEARCH CLASS:  
29, Metal Working, subclass 896.7 for a process of making a turnbuckle or of securing a tension member to a turnbuckle.  
254, Implements or Apparatus for Applying Pushing or Pulling Force, subclasses 204 and 231+ for similar structure in a tensioning apparatus which is removed after the tensioning operation is completed.  
301, Land Vehicles: Wheels and Axles, subclasses 92+ for similar structure for adjusting the length of a nonresilient tire.
- 44** This subclass is indented under subclass 43. Structure wherein the connector is provided with a handle or a particular means for engagement with a tool.
- 45** This subclass is indented under subclass 43. Structure wherein the rotatable part of the connector is rotated by an operating mechanism.
- 46** This subclass is indented under subclass 43. Structure wherein the connector is provided with a means for locking it in an adjusted position.
- 47** This subclass is indented under subclass 43. Structure wherein the rotatable part has two sets of threads for engagement with respective parts, the threads of each set being of the same hand but of different pitch.
- 48** This subclass is indented under subclass 43. Structure wherein the rotatable part has at least one set of external threads.
- 49** This subclass is indented under the class definition. Structure wherein two side-by-side members are secured together by means of a latch.

- 50** This subclass is indented under the class definition. Structure comprising a flexible diaphragm or bellows secured to each of the members.
- SEE OR SEARCH CLASS:
- 74, Machine Element or Mechanism, subclasses 18+ for a flexible diaphragm or bellows including a mechanical movement or mechanism.
- 277, Seal for a Joint or Juncture, for a generic sealing means or process, subclasses 634+ for a static contact seal for other than an internal combustion engine, or a pipe, conduit, or cable that is a flexible sleeve, boot or diaphragm.
- 51** This subclass is indented under subclass 50. Structure comprising a connecting means or packing between the two members in addition to the diaphragm or bellows.
- 52** This subclass is indented under the class definition. Structure comprising a connection between the members which comprises a particular feature which provides for relative movement of the members about a bearing surface.
- (1) Note. In order to be classified in this subclass the connection must comprise a feature which is peculiar to articulation. A feature of general utility which will merely permit movement under certain conditions will not be classified here but will be classified below.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 38+, for an articulated member associated with a fluid port or reservoir communicating with the joint.
- 220+, for two members connected for relative movement through a flexible connection.
- SEE OR SEARCH CLASS:
- 33, Geometrical Instruments, subclasses 466 and 467 for various articulated connections between parts of a straightedge.
- 81, Tools, subclasses 300+ for pliers having pivoted handles, particularly subclass 416 for pivotal joint details.
- 172, Earth Working, subclasses 372+ for an adjustable connection between an earth working means and a handle therefor.
- 248, Supports, subclasses 70, 122.1, 256, 257+, 265, 269+, 274.1+, and 475+ for an adjustable bracket; subclasses 106, 157+, 161+, 177.1+, 188.2+, and 371+ for an adjustable stand; subclasses 59, 323+, and 495+ for an adjustable suspended support; subclasses 354+ for an adjustable prop; subclasses 448+ for an adjustable easel; subclasses 514+ for an angularly adjustable staff support; and subclasses 646+ for an adjustable machinery support.
- 280, Land Vehicles, subclasses 400+ for an articulated connection between two vehicles.
- 464, Rotary Shafts, Gudgeons, Housings, and Flexible Couplings for Rotary Shafts, appropriate subclasses for a flexible or articulated coupling between rotary torque transmitting members.
- 53** This subclass is indented under subclass 52. Structure wherein two members are connected for movement about two or more axes by plural joints or by a single joint having plural distinct bearing means.
- SEE OR SEARCH CLASS:
- 248, Supports, subclasses 276.1+ for an adjustable bracket comprising plural articulations.
- 54** This subclass is indented under subclass 53. Structure comprising at least four members united by three distinct connections and movable about at least three parallel axes.
- 55** This subclass is indented under subclass 53. Structure comprising means for performing a single adjustment on plural articulation axes, e.g., tension or take-up, locking means, etc.
- 56** This subclass is indented under subclass 53. Structure comprising plural distinct ball and socket joints.

- 57** This subclass is indented under subclass 53. Structure including plural, nonparallel, rotary axes which together enable a member to be moved in more than one plane relative to another member.
- 58** This subclass is indented under subclass 57. Structure wherein at least two of the axes lie in different planes.
- 59** This subclass is indented under subclass 53. Structure comprising a rotary axis and a trans-latory or sliding axis.
- SEE OR SEARCH CLASS:  
33, Geometrical Instruments, subclasses 430, 454, 464-467, 471, 473, 480+, and 485 for a sliding pivotal adjust-ment between parts of a straightedge.
- 60** This subclass is indented under subclass 59. Structure comprising a threaded connection and an independent swivel connection.
- 61** This subclass is indented under subclass 59. Structure comprising a pivot stud which extends through an elongated aperture in both pivotal and slidable relation.
- 62** This subclass is indented under subclass 53. Structure comprising serially arranged, paral-lel, rotary axes.
- 63** This subclass is indented under subclass 53. Structure comprising plural slidable connec-tions.
- 64** This subclass is indented under subclass 52. Structure comprising three or more indepen-dent joints, one of which is nonserially related to the other two, wherein at least one joint pro-vides for relative motion between the respec-tive members.
- 65** This subclass is indented under subclass 52. Structure wherein a member is pivoted at the junction of two distinct intersecting surfaces.
- 66** This subclass is indented under subclass 52. Structure comprising an articulate joint and a distinct and independent static joint.
- 67** This subclass is indented under subclass 66. Structure comprising an assembly attached intermediate the ends of a rod, which assembly comprises at least one gudgeon pin or bearing for cooperating with a gudgeon pin on another structure.
- 68** This subclass is indented under subclass 66. Structure wherein one of the members is a plate or the side of a rod.
- 69** This subclass is indented under subclass 68. Structure wherein one member is a rod which extends through an opening in the plate.
- 70** This subclass is indented under subclass 68. Structure wherein the surface of the plate con-stitutes one of the relatively movable bearing surfaces.
- 71** This subclass is indented under subclass 68. Structure wherein a component of the articulate joint is secured to the plate by a clamping fas-tener.
- (1) Note. Included are fasteners such as bolts, screws and rivets.
- 72** This subclass is indented under subclass 66. Structure wherein the articulate joint is serially disposed intermediate two static joints.
- 73** This subclass is indented under subclass 72. Structure wherein the articulate joint is rotat-able, whereby the angle between the articulated members can be varied.
- 74** This subclass is indented under subclass 73. Structure wherein the articulate joint provides for rotary motion in more than one plane.
- 75** This subclass is indented under subclass 66. Structure wherein the articulate and static joints are so related that two of the members are offset from each other or extend at an angle to each other regardless of the disposition of the articulate joint.
- 76** This subclass is indented under subclass 66. Structure wherein the articulate joint comprises a ball and socket joint which is capable of movement on more than one axis.

- subclasses 664+ for an angularly adjustable machinery support.
- 77** This subclass is indented under subclass 76. Structure wherein the static joint comprises a threaded connection.
- 78** This subclass is indented under subclass 66. Structure wherein the articulate joint comprises two members which are free to rotate indefinitely.
- 79** This subclass is indented under subclass 66. Structure wherein the articulate joint comprises arms or sides of a U-shaped or channel-shaped member which are traversed by a pivot pin and pivoted to another member thereby.
- 80** This subclass is indented under subclass 66. Structure wherein the articulate joint provides for translatory movement of the connected members.
- 81** This subclass is indented under subclass 52. Structure comprising an operator or handle for varying the relative position of the members.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
33, for an assembly feature comprising an operator or handle for moving one member relative to another which is independent of the connection.
- 82** This subclass is indented under subclass 52. Structure wherein one of the members is elongated and arcuate and moves in a guide which engages opposite sides of the member.
- 83** This subclass is indented under subclass 52. Structure including means to lock the members in one or more positions.
- SEE OR SEARCH CLASS:  
81, Tools, subclasses 300+ for pivoted handle pliers, particularly subclasses 318+ for pliers having means to immobilize the jaws.
- 84** This subclass is indented under subclass 83. Structure wherein the members are lockable in an angular relationship.
- SEE OR SEARCH CLASS:  
248, Supports, subclasses 514+ for an angularly adjustable staff support; and
- 85** This subclass is indented under subclass 84. Structure provided with a movable brace associated with both members to maintain them in a selected position.
- 86** This subclass is indented under subclass 84. Structure comprising bearing components having contacting surfaces oblique to the axes of the members, whereby when the members are rotated the angularity of the members will change.
- 87** This subclass is indented under subclass 84. Structure comprising arcuate bearing surfaces which interfit with each other and a clamping screw which traverses the bearing interface to clamp the bearing surfaces together and lock the bearing components in a fixed position.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
61, for a screw traversing an elongated aperture in one component to provide distinct pivotal and translatory axes.
- 88** This subclass is indented under subclass 84. Structure comprising a component which partially or completely encompasses the members to retain them against separation, said component being spaced radially of the articulation axis.
- 89** This subclass is indented under subclass 88. Structure wherein the component is provided with a shank which is anchored to the joint assembly by a single threaded retainer which coacts with complementary threads on said shank.
- 90** This subclass is indented under subclass 84. Structure comprising a ball and socket connection between the members.
- 91** This subclass is indented under subclass 84. Structure including a pin or stud about which a member is pivoted.
- 92** This subclass is indented under subclass 91. Structure provided with a detent or latch means for locking the members in position, said

- means being located at a point radially spaced from the pivot point.
- 93** This subclass is indented under subclass 92. Structure wherein the detent or latch on one member enters a notch or opening in the periphery of a cooperating component on the other member.
- 94** This subclass is indented under subclass 92. Structure wherein the side of a rod enters a recess formed in a radial face of a component associated with the other member.
- 95** This subclass is indented under subclass 92. Structure wherein the detent or latch is pivotally mounted.
- 96** This subclass is indented under subclass 92. Structure wherein the detent or latch is adapted to engage a complementary recess in the radial face of another component.
- 97** This subclass is indented under subclass 91. Structure provided with one or more interengaging projections and recesses or slots to maintain the members in position.
- 98** This subclass is indented under subclass 91. Structure provided with an arcuate slot which is radially spaced from the stud and through which a bolt or other fastener passes to secure the joint in adjusted position.
- 99** This subclass is indented under subclass 91. Structure wherein the locking or unlocking action is effected by moving one of the members through at least two motions relative to the other.
- 100** This subclass is indented under subclass 91. Structure wherein the members are secured by a device which bridges the pivot and engages a component on each side thereof.
- 101** This subclass is indented under subclass 91. Structure wherein the relative position of two pivoted members is fixed by the interengagement of nesting parts associated with respective members.
- 102** This subclass is indented under subclass 91. Structure wherein the locking means is adapted to secure the members in axial alignment.
- 103** This subclass is indented under subclass 84. Structure wherein the locking means is adapted for selectively holding the members in a plurality of distinct positions.
- 104** This subclass is indented under subclass 83. Structure wherein one of the members is adapted for movement to a plurality of positions or orientations and the locking means secures said member in such positions or orientations.
- 105** This subclass is indented under subclass 104. Structure wherein the members may move freely in one direction, but are inhibited from movement in the opposite direction.
- 106** This subclass is indented under subclass 104. Structure wherein the lock means secures the members in at least one predetermined position.
- 107** This subclass is indented under subclass 106. Structure wherein one member is provided with a plurality of securing elements which permit adjustment of the members by a series of discrete steps.
- 108** This subclass is indented under subclass 107. Structure comprising recesses in the respective members and a retainer extending between selected recesses to hold the members in a selected position.
- 109.1** **Telescoping members:**  
This subclass is indented under subclass 83. Subject matter wherein one member extends into the other member and is longitudinally movable therein.
- 109.2** **Having detent:**  
This subclass is indented under subclass 109.1. Subject matter including a locking and releasing member (e.g., pawl, etc.).
- 109.3** **Spring biased:**  
This subclass is indented under subclass 109.2. Subject matter wherein the telescoping members are held in place by a releasable resilient member.

- 109.4 Threaded:**  
This subclass is indented under subclass 109.2. Subject matter wherein two or more members include mating helical windings by which said members are connected.
- 109.5 Cam or wedge:**  
This subclass is indented under subclass 109.2. Subject matter including an eccentric or tapered means intended to secure or lock the members in place.
- 109.6 Having transverse pin:**  
This subclass is indented under subclass 109.2. Subject matter including a cross-wise oriented short, stiff fastener.
- 109.7 Remotely actuated:**  
This subclass is indented under subclass 109.1. Subject matter wherein the motion of the members is controlled at a distance.
- 109.8 Self-locking:**  
This subclass is indented under subclass 109.1. Subject matter wherein a securing means engages after a certain length of displacement is reached by one of the members.
- 110** This subclass is indented under subclass 83. Structure wherein the members are secured by a clamping means.
- 111** This subclass is indented under subclass 52. Structure comprising resilient means for biasing a pair of rotatably engaged members toward one position.
- 112** This subclass is indented under subclass 52. Structure comprising means for limiting the relative motion of the members in at least one direction.
- 113** This subclass is indented under subclass 112. Structure wherein the members are pivotally connected and the means limits the angular motion about the pivot.
- 114** This subclass is indented under subclass 113. Structure comprising a ball and socket joint having means which limits angular motion along one axis to a greater degree than along another axis at ninety degrees thereto.
- 115** This subclass is indented under subclass 114. Structure wherein a rod or stud attached to the ball passes through a slot associated with the socket.
- 116** Structure under 113 wherein the means are the ends of a slot which coact with a pin or equivalent movable within the slot to limit angular movement.
- 117** This subclass is indented under subclass 13. Structure comprising two angularly spaced stops on one member which limit the angular motion about the pivot in two directions.
- 118** This subclass is indented under subclass 52. Structure wherein the interface between the two articulated members comprises mutually threaded components.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
343, for a threaded connection having no structural feature peculiar to articulation.
- 119** This subclass is indented under subclass 52. Structure wherein two members are connected for angular motion in a plane transverse to the axis of at least one member.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
65, for a member pivoted at a rigid corner.  
91+, for a connection comprising a pivot stud and means to lock the members at a selected angle.  
113+, for a pivotal connection including limit means.
- SEE OR SEARCH CLASS:  
33, Geometrical Instruments, subclasses 495 through 499 for a pivot between parts of a straightedge.  
114, Ships, subclass 98 for a pivotal connection between gaffs, booms, etc., and a mast or other support.  
116, Signals and Indicators, subclass 51 for a motion or direction indicator pivotally mounted on a vehicle.



- 135, Tent, Canopy, Umbrella, or Cane, subclass 62 for a pivotal connection between the tip and the shaft of a cane.
- 191, Electricity: Transmission to Vehicles, subclasses 60.2 and 60.3 for a pivot between a trolley head and its support.
- 217, Wooden Receptacles, subclasses 14 through 16 and 46-48 for a pivotal connection between components of a wooden receptacle.
- 220, Receptacles, subclasses 30+ for a pivotal connection between a closure and a receptacle.
- 335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 276 for a pivot between an armature and its mounting means and see the notes thereunder.
- 384, Bearings, subclasses 192+ pivot bearings where there is sliding or rolling contact between separate elements and see search notes.
- 415, Rotary Kinetic Fluid Motors or Pumps, subclass 141 for a pivotably mounted blade portion, and subclasses 160+ for individually pivoted vanes, in a fluid motor or pump of that class.
- 120** This subclass is indented under subclass 119. Structure comprising means to bias a member circumferentially about the pivot pin or to form a circumferentially acting abutment to dampen movement of a member.
- 121** This subclass is indented under subclass 119. Structure wherein the bearing surfaces are in line contact with each other which line constitutes an instantaneous axis about which the members pivot.
- SEE OR SEARCH CLASS:  
178, Telegraphy, subclass 107 for a telegraph key mounted by means of a knife-edge pivot.
- 122** This subclass is indented under subclass 119. Structure comprising members having mating surfaces, at least one of which is concave and one of which constitutes a ball or the equivalent, to permit limited relative movement of the members in more than one plane.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
56, for plural ball and socket connections.  
75, for a rigid joint and an angled or offset ball and socket joint.  
76+, for a ball and socket joint and a rigid joint.  
90, for a ball and socket joint which is lockable at a selected angle.
- SEE OR SEARCH CLASS:  
128, Surgery, subclass 122 for a ball and socket connection between elements of a truss.  
248, Supports, subclasses 181.1+ for a ball and socket joint associated with an adjustable article supporting head on a stand.  
278, Land Vehicles: Animal Draft Appliances, subclass 80 for a thill coupling including a ball and socket.  
280, Land Vehicles, subclasses 511+ for a ball and socket connection between articulated vehicles.  
285, Pipe Joints or Couplings, subclasses 51, 135, 138.1, 146.1+, and 261+ for similar structure associated with a pipe joint.
- 123** This subclass is indented under subclass 122. Structure comprising link or tie means within or passing through both the ball and socket members to hold them in coupled relation.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
286, for diverse bridging connectors in general.
- 124** This subclass is indented under subclass 122. Structure comprising a plurality of distinct concave bearing surfaces associated with one member and complementary convex bearing surfaces associated with the other member, said concave surfaces having either different centers or different radii of curvature.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
127, for a ball and sock joint having a plurality of separate, movable, spherical bearings.

- 125** This subclass is indented under subclass 124. Structure comprising an element having a convex and concave surface interposed between and complementary to a ball and socket whereby said interposed element provides a socket and ball to cooperate with the first mentioned ball and socket respectively.
- 126** This subclass is indented under subclass 124. Structure wherein the outer surfaces of the assembly are concave.
- 127** This subclass is indented under subclass 122. Structure including (a) separate bearing means between ball parts or (b) a ball seat which has bearing surfaces on opposite sides such that the seat is readily movable relative to both the ball and an adjacent surface of the socket or other member.
- 128** This subclass is indented under subclass 122. Structure comprising a ball composed of a plurality of assembled segments which segments move relative to the socket or housing.
- 129** This subclass is indented under subclass 128. Structure wherein a spring acts between the ball segments.
- 130** This subclass is indented under subclass 128. Structure wherein at least one part of the ball is of nonmetallic material.
- 131** This subclass is indented under subclass 128. Structure wherein one of the segments is the end of a stud which extends into the ball.
- 132** This subclass is indented under subclass 122. Structure comprising (a) an elastomeric component which biases a seat into engagement with the ball or (b) a socket comprising an elastomeric component which forms a backing for a ball engaging part.
- 133** This subclass is indented under subclass 122. Structure comprising a ball seat made of elastomeric material.
- 134** This subclass is indented under subclass 122. Structure wherein the members are provided with a packing remote from the bearing faces.
- (1) Note. For packing at the bearing interface, search the subclasses below, particularly 135+.
- SEE OR SEARCH CLASS:  
277, Seal for a Joint or Juncture, for a generic sealing means or process, subclass 635 for a static contact seal for other than an internal combustion engine, or a pipe, conduit, or cable that is a flexible sleeve, boot, or diaphragm having a dome, cup, or bell shape, or is for a ball joint.
- 135** This subclass is indented under subclass 122. Structure comprising an element interposed between the members which element forms part or all of one bearing face.
- SEE OR SEARCH CLASS:  
277, Seal for a Joint or Juncture, for a generic sealing means or process, subclass 507 for a dynamic, circumferential contact seal for other than a piston that accommodates gyrating or oscillating motion using a spherical bearing surface.
- 136** This subclass is indented under subclass 135. Structure wherein a spring cuts between coacting wedge surfaces (a) on distinct parts of the interposed element or (b) on the element and the socket wall.
- 137** This subclass is indented under subclass 135. Structure comprising adjustable means for varying the compression or tension of a spring biasing the element.
- 138** This subclass is indented under subclass 135. Structure wherein a spring biases the seat into engagement with the ball on the side of the ball opposite to that from which a rod like member extends.
- 139** This subclass is indented under subclass 135. Structure wherein the interposed element is of porous construction.
- 140** This subclass is indented under subclass 135. Structure wherein the element completely separates the members from contact with each other at the bearing interface.

- 141** This subclass is indented under subclass 122. Structure wherein the socket comprises a coupling device which is axially divided to form two or more separate segments which are jointed together to secure the ball and socket in operative engagement.
- 142** This subclass is indented under subclass 122. Structure wherein the socket is formed in a bifurcated component, one half of the socket being in each furcation.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
141, for a divided socket-type coupling.
- 143** This subclass is indented under subclass 122. Structure wherein the socket is composed of a plurality of parts which may be separated without destroying any part thereof.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
141, for a divided socket-type coupling.
- 144** This subclass is indented under subclass 122. Structure wherein a resilient means urges the ball and socket members into engagement.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
135+, for a directly biased packing or seat.
- 145** This subclass is indented under subclass 119. Structure wherein means is provided for exerting a force against the bearing interface or for taking up looseness or compensating for wear in the joint.
- 146** This subclass is indented under subclass 145. Structure comprising spring means interposed between two pivot parts and acting in the direction of the pivot axis, said spring means comprising (a) a single spring coaxial with the pivot or (b) a plurality of springs arranged symmetrically about the pivot.
- 147** This subclass is indented under subclass 145. Structure wherein the force exerted by the means is applied through a tapered surface on a bearing component whereby the bearing component is biased by a force acting in a direction other than that of the applied force.
- 148** This subclass is indented under subclass 145. Structure comprising means for varying the force manually.
- 149** This subclass is indented under subclass 145. Structure wherein the means is external of the bearing assembly.
- 150** This subclass is indented under subclass 119. Structure wherein a pivot pin is engaged at spaced points with an outer member and at an intermediate point with an inner member.
- SEE OR SEARCH CLASS:  
92, Expansible Chamber Devices, subclass 230 for a piston comprising a pin supporting boss encircled by an annular ring.
- 151** This subclass is indented under subclass 150. Structure wherein the pivot pin is rotatable with respect to both of the pivoted members.
- 152** This subclass is indented under subclass 150. Structure wherein the pin is integral or nonrotatably engaged with the inner member.
- 153** This subclass is indented under subclass 150. Structure wherein the pivot pin or an end thereof is expanded to secure the pin.
- 154** This subclass is indented under subclass 150. Structure comprising a distinct means for retaining the pin in operative position on one of the members.
- 155** This subclass is indented under subclass 154. Structure wherein the same comprises a unitary clip or a plug in the pin receiving part of the member.
- 156** This subclass is indented under subclass 154. Structure wherein the retaining means comprises a threaded end on the pin.
- 157** This subclass is indented under subclass 150. Structure wherein the outer member is bifurcated and the inner member comprises a part extending between the tines.

- 158** This subclass is indented under subclass 157. Structure wherein antifriction means is interposed either between the members or a member and a pivot pin.
- 159** This subclass is indented under subclass 157. Structure wherein the bifurcated portions are relatively movable in opposite directions along the axis of the pivot pin.
- 160** This subclass is indented under subclass 119. Structure wherein the pivot axis extends at an oblique angle to an axis of the member.
- 161** This subclass is indented under subclass 119. Structure wherein a pivot pin or stud is transverse to the longitudinal axis of both the members.
- 162** This subclass is indented under subclass 161. Structure wherein the pin extends through a separate facing means interposed between the members or between a member and the pin.
- 163** This subclass is indented under subclass 161. Structure wherein the pin is either integral with or fixedly secured to one of the members.
- 164** This subclass is indented under subclass 52. Structure wherein the members are rotatable with respect to each other.
- SEE OR SEARCH CLASS:  
59, Chain, Staple, and Horseshoe Making, subclass 9 for an apparatus for making a swivel for use with a chain or similar article and subclass 95 for a swivel for use with a chain or similar article.
- 165** This subclass is indented under subclass 164. Structure comprising a rod rotatably secured in a socket.
- 166** This subclass is indented under subclass 52. Structure comprising a pair of coaxial members biased in an axial direction by resilient means.
- 167** This subclass is indented under the class definition. Structure wherein two distinct spaced plate surfaces are structurally related to a rod which is transverse to at least one plate.
- 168** This subclass is indented under subclass 167. Structure wherein a rod is held to a plate by a retaining element which abuts or utilizes both plates.
- 169** This subclass is indented under the class definition. Structure comprising three or more independent joints, one of which is nonserially related to the other two.
- (1) Note. Distinct connection between a rod and the respective ends of a looped rod are included.
- 170** This subclass is indented under subclass 169. Structure comprising at least three interconnected members having axes which radiate outwardly from a single point, which point may lie outside of the joint, and wherein none of the members continue beyond the point.
- 171** This subclass is indented under subclass 170. Structure wherein the members converge and at least one of the members is noncoplanar with respect to the others whereby the members define at least three intersecting planes.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
176, for similar structure wherein at least one of the members continues beyond the point of intersection.
- 172** This subclass is indented under subclass 171. Structure wherein all of the members diverge on the same side of a plane containing the point.
- 173** This subclass is indented under subclass 170. Structure comprising at least two pairs of axially aligned members, the axes of the pairs intersecting at the point.
- 174** This subclass is indented under subclass 170. Structure wherein all of the members or their axes lie in a single plane.
- 175** This subclass is indented under subclass 174. Structure comprising an encompassed rod in addition to the coplanar members and juxtaposed therewith.

- 176** This subclass is indented under subclass 169. Structure comprising a plurality of members, the axes of which intersect at a single point and at least one of the rods lies in a different plane than the others to define at least three intersecting planes containing the point.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
171+, for three members radiating from a single point to define three intersecting planes.
- 177** This subclass is indented under subclass 169. Structure comprising a plurality of members at least, three of which are parallel rods.
- 178** This subclass is indented under subclass 169. Structure comprising a plurality of members, which has a surface or an axis in a common plane with the respective parts of each of the others.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
174+, for three or more coplanar members which radiate from a single point.
- 179** This subclass is indented under the class definition. Structure wherein two members of diverse materials are independently jointed to a coupling member comprising either (a) a third material necessary to form a joint with each of the members or (b) a combination of the diverse materials.
- 180** This subclass is indented under the class definition. Structure comprising three or more serially connected joints, at least one being dissimilar to one or more of the others.
- 181** This subclass is indented under subclass 180. Structure wherein at least two of the joints have different axes.
- 182** This subclass is indented under subclass 180. Structure wherein at least one of the intermediate joints can be disassembled without destroying any of the components of another.
- 183** This subclass is indented under subclass 182. Structure wherein plural parts of the intermediate joint are drawn together by a connecting means which exerts an axial force thereon.
- 184** This subclass is indented under subclass 182. Structure wherein the intermediate joint comprises an axially acting cam or a threaded interface.
- 185** This subclass is indented under the class definition. Structure wherein a plural layer rod is joined to a member, a plurality of layers of said rod being essential to the joint.
- 186** This subclass is indented under the class definition. Structure comprising a plurality of laterally related rods independently connected to a transverse surface.
- 187** This subclass is indented under the class definition. Structure including an intermediate member independently connected to a rod and to the transverse surface of another member, e.g., plate or rod side.
- SEE OR SEARCH CLASS:  
428, Stock Material or Miscellaneous Articles, subclass 28, for a rod-to-head type joint embodying specific structure of the head, (e.g., an ornament joined to a curtain rod, etc.).
- 188** This subclass is indented under subclass 187. Structure wherein the intermediate member is connected to the side of the rod.
- 189** This subclass is indented under subclass 187. Structure wherein the rod and intermediate member lie only on one side of a plane defined by the side surface, and no components extend as far as the opposite surface of the side.
- 190** This subclass is indented under subclass 187. Structure wherein the transverse member comprises a side of arcuate or polygonal shape.
- 191** This subclass is indented under subclass 190. Structure wherein the arcuate or polygonal side is completely encompassed by the intermediate member or its associated structure.

- 192** This subclass is indented under subclass 187. Structure wherein the intermediate member comprises a part which is of tubular cross-section.
- 193** This subclass is indented under subclass 192. Structure wherein either the side or the tubular part of intermediate member is deformed in effecting the joint.
- 194** This subclass is indented under subclass 192. Structure wherein the intermediate member extends through the side.
- 195** This subclass is indented under subclass 194. Structure wherein the tubular part is split or divided to provide spaced portions, and means acting upon these portions to force the same into gripping relation with the rod.
- 196** This subclass is indented under subclass 194. Structure wherein a clamping element is directed in a path transverse to the rod to secure the rod to the tubular part.
- 197** This subclass is indented under subclass 194. Structure wherein the rod which is connected to the intermediate member also extends through the side.
- 198** This subclass is indented under subclass 192. Structure wherein the portion of the rod which is joined to the intermediate member extends at an angle other than 90° or 180° with the side.
- 199** This subclass is indented under subclass 192. Structure wherein the intermediate member is provided with a radial flange which is joined to the side.
- 200** This subclass is indented under subclass 192. Structure wherein the tubular part of the intermediate member is internally threaded for attachment to the rod.
- 201** This subclass is indented under subclass 187. Structure wherein the intermediate member passes completely through the side.
- 202** This subclass is indented under the class definition. Structure comprising spaced inner and outer members joined by an intermediate connecting member, the connections between the intermediate member and each of the other members being independent of each other.
- 203** This subclass is indented under subclass 202. Structure wherein the intermediate connecting member is of flexible material.
- 204** This subclass is indented under the class definition. Structure wherein an inner member is joined to an axially overlapping multipart outer member, said inner member coacting with at least two parts of said outer member in effecting the joint.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
 288, for a packed joint between inner and outer members where a follower connected to a unitary outer member compresses the packing.  
 373+, for a joint between inner and outer members where a follower or actuator connected to the outer member is necessary to the joint.
- 205** This subclass is indented under the class definition. Structure comprising a coupling member having means at the ends to join the ends of two members independently and distinctly and adapted to hold the ends in angular relation.
- SEE OR SEARCH CLASS:  
 122, Liquid Heaters and Vaporizers, subclass 87 for a U-coupling between two fire tubes in a boiler.
- 206** This subclass is indented under the class definition. Structure comprising a curved or bent rod wherein the curvature or bent portion is utilized in effecting the joint.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
 229, for a resilient, coiled spring for flexibly uniting two rigid members.  
 291+, for a joint between a member of flexible, coiled material and a rigid member where the only characteristic of the coil put to use is its flexibility. If the curvature of the coil is utilized, as for example helical grooves in a member which receive the coil, the subject matter is here (subclass 206).

- SEE OR SEARCH CLASS:
- 24, Buckles, Buttons, Clasps, etc., subclasses 115+ for a choker, i.e., a freely enlargeable or contractable loop encompassing a member.
- 56, Harvesters, subclasses 433+ for means for knotting the ends of a band which passes around a bundle.
- 57, Textiles: Spinning, Twisting, and Twining, subclass 202 for a splice in strand structure.
- 289, Knots and Knot Tying, appropriate subclasses for the intertwining of one or more portions of a cord, strip or strand.
- 207** This subclass is indented under subclass 206. Structure wherein the curved portion of one rod forms a recess which receives an intermediate part of a transversely extending rod.
- 208** This subclass is indented under subclass 206. Structure wherein the curved or bent portion of the rod is joined at points spaced along the curvature thereof to a transverse surface which is related laterally thereto.
- 209** This subclass is indented under subclass 209. Structure wherein the curved or bent portion includes an arc of more than ninety degrees.
- 210** This subclass is indented under subclass 209. Structure comprising an element having a peripheral opening or channel about which the rod is adapted to be wrapped and fastened, the total structure forming an eye.
- 211** This subclass is indented under subclass 209. Structure wherein opposed portions of the bend are clamped together or to another component by a wedge element.
- 212** This subclass is indented under subclass 209. Structure provided with a collar which is crimped to opposed portion of the curved or bent rod.
- 213** This subclass is indented under subclass 209. Structure wherein the ends of the curved or bent rod are spaced apart.
- 214** This subclass is indented under subclass 206. Structure comprising a pair of flexible rods, the ends of which are twisted together.
- 215** This subclass is indented under subclass 206. Structure wherein an end of the rod is deflected transverse to its axis within a connector.
- 216** This subclass is indented under subclass 206. Structure wherein plural rods are deformed or flexed by a single element.
- 217** This subclass is indented under the class definition. Structure wherein three or more members are connected at one locus by a single joint.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 169+, for branched members which may intersect at a single locus.
- 300+, for two members joined by a coupler which may itself be a member.
- 218** This subclass is indented under subclass 217. Structure wherein all of the members are encompassed by a connecting means or by a part of a connecting means and another member.
- 219** This subclass is indented under subclass 217. Structure wherein each of the members contacts each of the others.
- 220** This subclass is indented under the class definition. Structure wherein at least part of the joint is flexible and permits relative movement of the members.
- SEE OR SEARCH CLASS:
- 74, Machine Element or Mechanism, subclass 470 for a resilient connection in a control lever or linkage system.
- 105, Railway Rolling Stock, subclass 40 for a flexible connecting between boiler sections of a steam locomotive.
- 114, Ships, subclasses 213+ for various tension relievers.
- 191, Electricity: Transmission to Vehicles, subclasses 60.2 and 60.3 for a resilient connection between a trolley pole and head.

- 415, Rotary Kinetic Fluid Motors or Pumps, subclass 141 for a blade having a resilient connection to its support in a rotary kinetic fluid motor or pump.
- 428, Stock Material or Miscellaneous Articles, subclass 591 for metallic stock having a feature which allows relative movement between the components thereof.
- 221** This subclass is indented under subclass 220. Structure wherein the members are connected by a means comprising a sleeve of rigid material and a flexible spacing member within the sleeve.
- 222** This subclass is indented under subclass 221. Structure wherein the sleeve is divided along an axial line.
- 223** This subclass is indented under subclass 220. Structure comprising a coupling of tubular cross-section made of a flexible material.
- 224** This subclass is indented under subclass 220. Structure wherein a pin or bolt connecting the two members extends through and is flexibly secured to one member by an elastomeric element surrounding said bolt.
- 225** This subclass is indented under subclass 220. Structure comprising radially spaced members secured together by an interposed elastomeric component.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
365+, for a radially interposed shim or bushing in general.
- SEE OR SEARCH CLASS:  
428, Stock Material or Miscellaneous Articles, subclass 625 for a metallic composite in which an additional component has an elastomer base.
- 226** This subclass is indented under subclass 225. Structure wherein the inner member comprises a shoulder, each radial side of which is engaged by the elastomeric element.
- 227** This subclass is indented under subclass 225. Structure comprising an axial compression means for loading the elastomer between the radially spaced members.
- 228** This subclass is indented under subclass 225. Structure comprising a bushing for insertion between the members, which bushing is made of a plurality of parts.
- 229** This subclass is indented under subclass 220. Structure comprising a helical spring connecting the two members.
- 230** This subclass is indented under the class definition. Structure comprising a connection between the side of a member and the end of a rod transverse thereto wherein some characteristic of the side is utilized in effecting the joint.
- (1) Note. Included is a connection comprising a rod receiving opening which extends entirely through the member and wherein both sides of the member are involved in effecting the joint.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
186, for plural rods joined to a side wherein the rods are independently secured to the side.  
187, for serial connections between a rod, an intermediate member and a side.
- SEE OR SEARCH CLASS:  
285, Pipe Joints or Couplings, subclasses 189+ for a pipe end joined to a plate.  
301, Land Vehicles: Wheels and Axles, subclass 111.01 for means securing a wheel to an axle combined with structure of either the wheel or axles in addition to that which cooperates to form the connection.  
428, Stock Material or Miscellaneous Articles, subclass 28, for a rod-to-head type joint embodying specific structure to the head, (e.g., an ornament joined to a curtain rod, etc.).  
474, Endless Belt Power Transmission Systems or Components, appropriate subclasses, and particularly subclass 902 for a particular connection between the rim and hub; and subclass



- 903 for a particular connection between the hub and shaft of a pulley or guide roll.
- 231** This subclass is indented under subclass 230. Structure wherein the end of one rod is connected to the side of another adjacent its end to form an angular construction.
- 232.1** This subclass is indented under subclass 230. Structure wherein the rod is received in a generally U-shaped element associated with the side of the member.
- 233** This subclass is indented under subclass 230. Structure wherein the end of a first rod is joined to the side of a second rod by an attached element which encompasses more than 180° of the periphery of the second rod.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
191, for an intermediate member independently connected to a rod and to an arcuate side wherein the intermediate member encompasses the side.
- 234** This subclass is indented under subclass 233. Structure wherein the first rod has associated therewith an arcuate surface less than 180° which is clamped to the side of the second rod.
- 235** This subclass is indented under subclass 233. Structure wherein the encompassing means comprises either a U-shaped or an annular component.
- 236** This subclass is indented under subclass 235. Structure wherein radially extending screw extends through the bight of the U-shaped or annular component for engaging the side of the second rod.
- 237** This subclass is indented under subclass 230. Structure comprising an arcuate or polygonal portion on one rod which straddles the side of another rod transverse thereto.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
234, for a clamped saddle.
- 238** This subclass is indented under subclass 230. Structure wherein the rod and side are connected by a short rod section coaxial with the rod and extending through an aperture in the side.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
187+, for an intermediate member joining a rod and side wherein the connections between the intermediate member and the rod and side are independent.
- 239** This subclass is indented under subclass 238. Structure provided with clamping means which is so constructed as to grip both the side and rod simultaneously in response to a single movement of an actuator.
- 240** This subclass is indented under subclass 230. Structure comprising means cooperating with the radial edge of a hole in the side for clamping a rod therebetween.
- 241** This subclass is indented under subclass 230. Structure wherein the opposite walls of a side are engaged by a connecting means, said means extending over an open, or free, edge of the side.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
247+, for connecting means which engages opposite walls and an edge of a hole which passes through the walls.
- 242** This subclass is indented under subclass 230. Structure wherein the rod and side are interlocked by deforming the rod or side in situ.
- 243** This subclass is indented under subclass 230. Structure comprising a shim or bushing interposed between the rod and the edge of a hole in the side through which the rod passes, a part of said shim or bushing extending beyond the hole edge and engaging a surface of the side.
- 244** This subclass is indented under subclass 230. Structure wherein a part of the side is deformed or shaped to form a socket or part thereof for receiving the end of a rod, the deforming or shaping operation being accomplished without substantial removal of material.

- 245** This subclass is indented under subclass 230. Structure wherein the side is provided with a transverse integral projecting portion to which the rod is secured.
- 246** This subclass is indented under subclass 245. Structure wherein the projecting portion extends from the side of a rod.
- 247** This subclass is indented under subclass 230. Structure wherein opposed sides of the member are utilized in effecting the joint.
- 248** This subclass is indented under subclass 247. Structure wherein the rod extends from an opening in the member and the end of the rod is expanded by a component inserted therein from the side of the member opposite the side from which the rod extends.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
277, for similar structure wherein the side characteristics of a member are not utilized.
- 249** This subclass is indented under subclass 248. Structure wherein the inserted component is separate from both the rod and the member and is deformed upon insertion into the rod.
- 250** This subclass is indented under subclass 248. Structure wherein the inserted component comprises of coating parts which contact each other when in assembled condition.
- 251** This subclass is indented under subclass 248. Structure wherein the inserted component is provided with a barb to act as a restraint against withdrawal.
- 252** This subclass is indented under subclass 247. Structure wherein the rod comprises a component for insertion through an aperture in the member, said component being adapted, after insertion, for engagement with the surface of the distal side, whereby the joint may be effected entirely from the proximal side of the member.
- 253** This subclass is indented under subclass 247. Structure wherein at least one side of the member is provided with a stepped or tapered recess which is used in effecting the joint.
- 254** This subclass is indented under subclass 253. Structure wherein a portion of the rod extends through the member and is provided with a retainer adjacent its end which engages the distal side of the member.
- 255** This subclass is indented under subclass 254. Structure wherein a part of the retainer is inserted into the rod.
- 256** This subclass is indented under subclass 247. Structure wherein the member is clamped between two joint components associated with the rod on opposite sides of the member.
- 257** This subclass is indented under subclass 256. Structure wherein one of the member clamping parts engages a recessed portion in a side of the member.
- 258** This subclass is indented under subclass 256. Structure wherein the rod is clamped to the member by a bolt passing through the member and threaded into the rod.
- 259** This subclass is indented under subclass 256. Structure wherein opposite sides of the member are contacted by a shoulder on the rod and a nut located proximally to the free end of the rod.
- 260** This subclass is indented under subclass 256. Structure wherein the rod is clamped to the member by one or more bolts passing through the member.
- 261** This subclass is indented under subclass 256. Structure wherein the rod is provided with a collar or a peripheral shoulder which is coaxial therewith and which forms one of the clamping components.
- 262** This subclass is indented under subclass 230. Structure comprising a flange on the rod secured to the side of the member by bolts, screws or the equivalent.

- 263** This subclass is indented under subclass 230. Structure wherein the side of the member is provided with a recess to receive the rod.
- 264** This subclass is indented under subclass 230. Structure wherein internal structure of the rod is utilized in effecting the joint.
- 265** This subclass is indented under the class definition. Structure wherein the members are secured by, (a) an adhesive material, (b) a material which is applied in a liquid or plastic state and thereafter solidifies, or (c) the diffusion of one member into another, e.g., spot weld, cold weld.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
179, for two members joined by bonding to an intermediate member of diverse material.
- SEE OR SEARCH CLASS:  
156, Adhesive Bonding and Miscellaneous Chemical Manufacture, appropriate subclasses for processes of bonding by adhesion.  
228, Metal Fusion Bonding, appropriate subclasses for method or apparatus for metallurgical surface bonding.  
313, Electric Lamp and Discharge Devices, subclasses 317+ for electric lamp and electric discharge devices provided with lead-in wires sealed into the envelope of the lamp or discharge device and subclasses 334+ for the structure of nonmetallic electrodes or shields which are joined to a lead-wire or conductor.
- 266** This subclass is indented under subclass 265. Structure comprising a nonmolded connection in addition to and independent of the molded joint.
- 267** This subclass is indented under subclass 265. Structure wherein the members are additionally secured together by means other than the adhesive, fusible, or diffusible material.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
266, for a joint including a connection which is independent of the molded joint.
- 268** This subclass is indented under subclass 265. Structure wherein one member has a socket or open cup containing bonding material into which the other member extends.
- 269** This subclass is indented under subclass 265. Structure wherein a member is cast around a second member whereby it is simultaneously formed and joined to the second member.
- SEE OR SEARCH CLASS:  
249, Static Molds, subclasses 83+ for a process of uniting a preform with a molding material during the molding operation.
- 270** This subclass is indented under subclass 165. Structure wherein the joint is effected by the solidification of a fusible material.
- SEE OR SEARCH CLASS:  
228, Metal Fusion Bonding, appropriate subclasses for method or apparatus for metallurgical surface bonding.
- 271** This subclass is indented under subclass 270. Structure wherein the fusible material is metallic.
- SEE OR SEARCH CLASS:  
428, Stock Material or Miscellaneous Articles, subclasses 544+ for stock material, e.g., of indefinite length, which are all metal or have adjacent metal components.
- 272** This subclass is indented under subclass 271. Structure comprising fusible material in addition to the material of the members.
- 273** This subclass is indented under the class definition. Structure wherein two members are joined by shrinking one onto the other, usually by heating the outer member and/or cooling the inner member prior to assembly.

- SEE OR SEARCH CLASS:  
285, Pipe Joints or Couplings, subclass 381.1 for a shrunk fit pipe joint.
- 274** This subclass is indented under the class definition. Structure wherein the joint is effected by distorting at least one of the members beyond its elastic limit in situ.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
242, for a rod deformably interlocked with the side of another member.  
248+, for a rod end to side connection wherein the rod is expanded by a component inserted from the distal side.
- SEE OR SEARCH CLASS:  
285, Pipe Joints or Couplings, subclasses 382+ for similar structure involving tubular members.
- 275** This subclass is indented under subclass 274. Structure wherein a deformed member comprises a plurality of strands which are separated by an element inserted therebetween.
- SEE OR SEARCH CLASS:  
29, Metal Working, subclass 461 for a process of joining comprising the spreading of cable strands.
- 276** This subclass is indented under subclass 274. Structure comprising a separate element interposed between two members and in contact with the bottom of a socket for deforming one or more of the members.
- 277** This subclass is indented under subclass 274. Structure wherein a part of one member is encompassed by a part of another and the inner member is expanded by an element inserted longitudinally therein.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
248+, for a similar connection between a rod end and the side of a member.
- 278** This subclass is indented under subclass 274. Structure wherein the deformation of one of the members is effected by a separate distinct element which is itself deformed as an incident to the making of the joint.
- SEE OR SEARCH CLASS:  
285, Pipe Joints or Couplings, subclass 382.7 for a pipe joint wherein the pipe ends are deformed by a separate deformable element.
- 279** This subclass is indented under subclass 274. Structure wherein the deformation is effected simultaneously with and effected by, the action of a joint component which performs another function in the joint assembly in addition to the deforming function.
- 280** This subclass is indented under subclass 274. Structure wherein the members are connected by an inserted section which section is provided with means for deforming the members.
- 281** This subclass is indented under subclass 274. Structure wherein the deforming means is separated from each member and remains with the joint assembly after the joint is effected.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
11+, for a joint provided with a deforming means which may or may not remain with the joint assembly after the joint is effected but which performs no function in the completed joint.  
275, for a joint comprising an element which is inserted between the strands of a stranded member.
- 282** This subclass is indented under subclass 274. Structure wherein the deformation occurs as the members are assembled together.
- 283** This subclass is indented under subclass 274. Structure wherein the deformation of one member is effected by the penetration of a component and includes the separation of material at the surface of said member.
- 284** This subclass is indented under subclass 274. Structure wherein the members are of different resistance to deformation, e.g., diverse hardness, and are so arranged that, when both are simultaneously subjected to a lateral deforming force, one will be deformed to a greater degree than the other.

- 285** This subclass is indented under subclass 274. Structure wherein both members are deformed.
- 286** This subclass is indented under the class definition. Structure comprising a pair of diverse, independent, spaced connecting means between two members each of the connecting means being secured to each of the members and being so arranged that one completely overlies the other.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
123, for an internal tie means between two members connected by a ball and socket joint.
- 287** This subclass is indented under the class definition. Structure wherein a single joint between two members comprises a plurality of distinct, spaced, diverse connections.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
286, for a joint bridged by a diverse connector.
- 288** This subclass is indented under the class definition. Structure provided with means for sealing the joint, said means being distinct from the joint and unnecessary to the connection of the members.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
134, for a ball and socket joint provided with packing at a point remote from the bearing interface.  
135+, for a ball and socket joint provided with packing at the bearing interface.
- 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).
- 289** This subclass is indented under the class definition. Structure wherein an end portion of one of the members is split, the portions separated by the split being movable laterally into gripping engagement with another member to effect the joint.
- 290** This subclass is indented under subclass 289. Structure including a means for applying a force to the laterally movable portions to displace them into gripping relation.
- 291** This subclass is indented under the class definition. Structure comprising relatively flexible and rigid members, the flexible and rigid characteristics being essential to the joint.
- SEE OR SEARCH CLASS:  
114, Ships, subclasses 213+ for various tension relievers.  
384, Bearings, subclasses 2+ for nonjoint, nonrotating fulcrum bearing where there is sliding or rolling contact between separate elements.
- 292** This subclass is indented under the class definition. Structure wherein a connecting section is mounted between the ends of two juxtaposed members and extends into respective openings leading from the end faces of the members.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
280, for an inserted section which deforms one of the connected members.
- 293** This subclass is indented under subclass 292. Structure including an external part which bridges the members.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
286, for an inserted section and a separate external bridging piece wherein the inserted section and the external bridging piece serve to connect the members independently of each other.
- 294** This subclass is indented under subclass 292. Structure wherein the section is inserted transversely of the members.
- 295** This subclass is indented under subclass 292. Structure wherein the members extend at an angle to each other and the section has angularly extending portions which cooperate with the respective members.

- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
 205, for a rigid angle coupling having distinct, independent means for connection with two end members.
- 296** This subclass is indented under subclass 292. Structure wherein the section is threadedly engaged with at least one of the members.
- 297** This subclass is indented under subclass 292. Structure wherein the section is radially expandable into engagement with the openings.
- 298** This subclass is indented under subclass 292. Structure wherein the section is provided with axially extending grooves or ribs.
- 299** This subclass is indented under the class definition. Structure comprising a member having threads at one end for connection to a threaded member and means at the other end for connection to either a nonthreaded member or to a member having threads of a different nature from those of the former threaded member.
- 300** This subclass is indented under the class definition. Structure comprising an intermediate joining piece having a distinct connection with the respective ends of each of two members and bridging the ends of the members.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
 26, for a coupler journaled to a structure other than the connected members.  
 43, for a turnbuckle.  
 205, for a coupler for connecting two members at a rigid angle.  
 223, for a flexible sleeve type coupler.  
 229, for a helical spring type coupler.  
 292+, for an inserted section.  
 Dig. 15, for a plate which bridges the ends of two members and is secured to each.
- 301** This subclass is indented under subclass 300. Structure wherein the connections of a different type and are serially related.
- 302** This subclass is indented under subclass 301. Structure wherein the joining piece is axially divided at one end.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
 141, for a ball and socket joint comprising an axially divided coupling piece having a socket formed therein.
- 303** This subclass is indented under subclass 300. Structure wherein a single means engages or disengages each connection simultaneously.
- 304** This subclass is indented under subclass 303. Structure wherein the actuator biases axially movable end portions of the joining piece to engage or disengage the connections.
- 305** This subclass is indented under subclass 300. Structure wherein the joining piece is provided with a socket at each end, said sockets opening in opposite directions.
- 306** This subclass is indented under subclass 300. Structure wherein each member is connected independently to the joining piece by a separate screw or pin.
- 307** This subclass is indented under subclass 300. Structure wherein the joining piece is provided with an unbroken thread which engages both of the members.
- 308** This subclass is indented under subclass 300. Structure comprising separable caps or plugs which close the ends of the joining piece.
- 309** This subclass is indented under subclass 300. Structure wherein the outer periphery of the joining piece body is discontinuous along its entire length.
- 310** This subclass is indented under subclass 309. Structure wherein the joining piece is separable into longitudinal segments.
- 311** This subclass is indented under subclass 310. Structure wherein the segments are so constructed as to interfit with each other when assembled.
- 312** This subclass is indented under subclass 310. Structure wherein the segments are bolted together.

- coupling them against rotation relative to one another.
- 313** This subclass is indented under subclass 309. Structure wherein the joining piece comprises a unitary piece split along its length.
- 314** This subclass is indented under subclass 300. Structure comprising means for wedging or camming a member and the joining piece into engagement.
- 315** This subclass is indented under the class definition. Structure wherein the joint is hampered against disconnection by a distinct means, which means either coacts with the joint or prevents access thereto, and which means does not constitute a part of the joint.
- 316** This subclass is indented under subclass 315. Structure wherein the hampering means prevents disengagement of a retaining means forming a part of the joint assembly.
- 317** This subclass is indented under subclass 316. Structure wherein the hampering means is hampered from being disengaged from the retaining means by a distinct means which means is unnecessary to the function of the hampering means.
- 318** This subclass is indented under subclass 316. Structure wherein the hampering means hampers the disassembly of two members retained by a key by blocking any movement of the key.
- 319** This subclass is indented under subclass 315. Structure wherein the hampering means comprises either a catch or a separate piece inserted between and positively engaging each of the members.
- 320** This subclass is indented under subclass 315. Structure wherein the hampering means prevents disassembly of two members secured together by a cammed or threaded connection.
- SEE OR SEARCH CLASS:  
411, Expanded, Threaded, Driven, Headed, Tool-Deformed, or Locked-Threaded Fastener, subclasses 81+ for a threaded fastener (i.e., a bolt or nut) and means for restricting the rotation thereof relative to a coacting substructure; and subclasses 190+ for a threaded bolt and nut and means for
- 321** **Manually releasable latch type:**  
This subclass is indented under the class definition. Subject matter comprising a device fastening at least two members together and is designed to be unfastened by a human hand.
- SEE OR SEARCH CLASS:  
285, Pipe Joints or Couplings, subclasses 308+ for similar structure in a pipe joint.  
292, Closure Fasteners, subclass 1 for structure used to secure a closure in position.
- 322.1** **Having operating mechanism:**  
This subclass is indented under subclass 321. Subject matter including two or more interrelated mechanical elements for operating a latch, or locking means.
- 322.2** **Ball detent:**  
This subclass is indented under subclass 322.1. Subject matter wherein one or more of the operating elements or the locking means is spherical.
- 322.3** **Remote:**  
This subclass is indented under subclass 322.1. Subject matter wherein the operating mechanism is actuated at a distance.
- 322.4** **Lever:**  
This subclass is indented under subclass 322.1. Subject matter wherein the operating mechanism includes an elongate member which is pivoted on a fulcrum.
- 323** This subclass is indented under subclass 321. Structure wherein the latch comprises a bolt swivelled about its axis to one member and having a laterally extending projection for engaging the other member.
- 324** This subclass is indented under subclass 321. Structure wherein the latch comprises a transversely sliding pin.
- 325** This subclass is indented under subclass 321. Structure wherein the manipulator is spring biased.

- 326** This subclass is indented under the class definition. Structure comprising means for securing two members together wherein an element biased into a recess or opening holds the members in assembled relation.
- (1) Note. The bias may result from the action of a distinct means for from the resiliency of one or more of the members.
- SEE OR SEARCH CLASS:  
285, Pipe Joints or Couplings, subclasses 305+ for similar structure in a pipe joint.
- 327** This subclass is indented under subclass 326. Structure wherein the element is biased into operative position by a separate spring.
- 328** This subclass is indented under subclass 327. Structure wherein the spring biased element is slidably engaged with one member and is radially movable into engagement with the other member.
- 329** This subclass is indented under subclass 326. Structure wherein the element comprises a leaf spring.
- 330** This subclass is indented under subclass 326. Structure wherein the element is pivotally mounted.
- 331** This subclass is indented under the class definition. Structure including colinear elongated members which must be slid transversely of the longitudinal axis of the members to assemble or disassemble the joint.
- SEE OR SEARCH CLASS:  
285, Pipe Joints or Couplings, subclass 67 for a side slide connection between two pipes whose ends define identical halves and subclasses 325+ for a side slide connection between two pipes in general.
- 332** This subclass is indented under the class definition. Structure wherein one member extends into an annular recess in another member, said recess being bounded by radially spaced surfaces of 360 degrees, said surfaces being either integral with the second member or formed by a distinct component joined thereto.
- SEE OR SEARCH CLASS:  
285, Pipe Joints or Couplings, subclasses 328+ for similarly joined pipes.
- 333** This subclass is indented under the class definition. Structure wherein a member has an end, the entire periphery of which is longitudinally stepped or tapered, providing surfaces which are contacted by another complementary member, forming a joint interface.
- SEE OR SEARCH CLASS:  
285, Pipe Joints or Couplings, subclasses 328+ for similarly joined pipes.
- 334** This subclass is indented under subclass 333. Structure wherein the diameter of the first mentioned member decreases uniformly toward the end of the member.
- 335** This subclass is indented under the class definition. Structure wherein each member comprises an outwardly directed flange or shoulder adapted for connection to a corresponding flange or shoulder on the other member by a separate connecting element.
- 336** This subclass is indented under subclass 335. Structure wherein at least one of the flanges or shoulders is separate from but secured to its associated member.
- 337** This subclass is indented under subclass 335. Structure wherein the flanges are secured together by bolts or rivets extending parallel to the axis of the members.
- 338** This subclass is indented under subclass 335. Structure wherein the flanges are secured together by clamping means.
- 339** This subclass is indented under the class definition. Structure comprising lapped rod ends having complementary engaging portions formed by halving, beveling, notching or otherwise cutting away the peripheries of the rods adjacent their ends in such a way as to maintain the configuration of the connected parts substantially the same as that of the adjacent parts of the respective rods.



- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
401+, for a miter joint.
- SEE OR SEARCH CLASS:  
238, Railways: Surface Track, subclasses  
230+ for a scarf joint between railway  
track sections.
- 340** This subclass is indented under subclass 339. Structure wherein the engaging portions of the respective rod ends are mirror images of one another.
- 341** This subclass is indented under the class definition. Structure wherein the members comprise interfitting parts and an external component which bridges their interface.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
286, for a means bridging a connection which means itself constitutes a connection between the same members.
- 342** This subclass is indented under the class definition. Structure comprising an external sleeve having an internal threaded or cam surface to engage complementary external structure on one member and an inwardly extending flange for slidably engaging an abutment on the other member whereby rotation of the sleeve draws the members together.
- 343** This subclass is indented under the class definition. Structure having interengaging parts comprising (1) screw threads on the members at the coupling interface, or (2) an axially inclined groove or shoulder on one member which engages a corresponding component on the other member, said interengaging parts being adapted to move the two members axially when the members are rotated.
- 344** This subclass is indented under the class definition. Structure wherein one member is comprised of either separable segments or is split axially the entire length wherein the connection is effected by assembling the segments or closing the split.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
289+, for a connection involving laterally movable opposed portions formed by splitting the end of a member.
- 345** This subclass is indented under the class definition. Structure wherein each member comprises a part which interfits with a respective part of the other member.
- SEE OR SEARCH CLASS:  
277, Seal for a Joint or Juncture, for a generic sealing means or process, subclass 547 for a dynamic, segmented ring circumferentially contacting seal for other than piston having interfitting projection and recess on its end structure or subclass 548 for a dynamic, segmented ring circumferentially contacting seal for other than piston having complementary interfitting adjoining rings.
- 428, Stock Material or Miscellaneous Articles, subclasses 577+ for metal stock, blanks, or indeterminate articles which may include an interlocking joint between components thereof, and subclass 609 for metallic stock in which a macroscopic irregularity exists at the interface between components.
- 346** This subclass is indented under subclass 345. Structure wherein the members comprise a pair of angularly related rods which are connected at a point intermediate their respective ends.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
207, for crossed rods one of which interfits within a curved portion of the other.
- 347** This subclass is indented under subclass 346. Structure wherein the perimeter of one rod is completely encompassed by the other.
- 348** This subclass is indented under subclass 345. Structure wherein a protuberance on one member engages a complementary part on the other member, the engagement being effected by relative rotation of the two members.

- 349 This subclass is indented under subclass 348. Structure wherein the complementary part comprises a slot with longitudinal and circumferential portions for the protuberance.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
343, for a bayonet slot which comprises a screw or cam surface for biasing the members axially as they are rotated to effect the joint.
- 350 This subclass is indented under subclass 345. Structure wherein rotation of (a) one member with respect to the other member of (b) an actuator having the same axis as one of the members binds the two members together or caused a retainer to bind between the two members.
- 351 This subclass is indented under subclass 350. Structure wherein the binding action is effected by a relatively thin element or lining interposed in the space between the two members or between one member and an additional radially spaced component.
- 352 This subclass is indented under subclass 351. Structure wherein the relatively thin element comprises element of less than 1805 which is interposed between two arcuate peripheral surfaces.
- 353 This subclass is indented under subclass 345. Structure wherein the members are so configured that plural, distinct manipulations of one or more of the members are required in order to effect their connection or disconnection.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
52+, for a joint wherein the members are relatively movable after they are assembled.  
99, for an articulated joint which is lockable by plural motions of one member.  
349, for a bayonet joint.  
350+, for a rotary binding cam or wedge.
- 354 This subclass is indented under subclass 345. Structure wherein one member is provided with a diametric slot extending axially from one end thereof which slot is used in effecting the joint.
- 355 This subclass is indented under subclass 345. Structure including a component having means between and separably and nonrotatably engaging each of two telescoping members.
- 356 This subclass is indented under subclass 355. Structure wherein the means extends axially of one of the members.
- 357 This subclass is indented under subclass 356. Structure wherein the means is resilient.
- 358 This subclass is indented under subclass 356. Structure wherein the means is either stepped or tapered in a direction parallel to the axis of one of the members.
- 359.1 **Longitudinally splined or fluted rod:**  
This subclass is indented under subclass 345. Subject matter wherein one of the members is a round slender bar provided with (a) one or more longitudinal ribs of greater radial extent than the rest of the periphery of the bar or (b) a plurality of longitudinal grooves.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
298, for a fluted or splined inserted section.
- 359.3 **Rod designed to be manipulable, e.g., twistable, within coupling for quick disconnect:**  
Subject matter under 359.1 wherein the bar is designed to disengage by turning the bar with a motion that takes a short amount of time.
- 359.2 **Splayed or having a cam surface for anti-backlash:**  
Subject matter under 359.1 wherein the bar is slotted around the circumference in order to spread the slotted bar end outward or having a lobe-like portion to minimize or prevent the play between movable parts caused by sudden movement e.g., during start-up.
- 359.4 **Including a means, e.g., spring biased portion, for misalignment correction:**  
Subject matter under 359.1 wherein a bar receiving structure has a resilient, coiled device to assist in lining up the bar for insertion into the bar receiving structure.

- 359.5 Including a lock or retainer:**  
Subject matter under 359.1 wherein the bar also has a device which fixes or holds the bar in place.
- 359.6 Specific angle or shape of rib, key, groove, or shoulder:**  
Subject matter under 359.1 wherein the design of an elongated ridge or narrow channel has a particular degree of change from horizontal or vertical.
- 360** This subclass is indented under subclass 345. Structure wherein one of the members is a rod having (a) a shoulder extending entirely around the periphery or (b) an enlargement on one end of the rod.
- 361** This subclass is indented under subclass 345. Structure wherein one of the members comprises a rod which is received in a recess in the other member and engages the bottom of the recess or a peripheral abutment therein.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
165, for a rod end rotatably received in a socket.  
244, for a rod end associated with a socket formed by deforming or shaping a platelike member.  
268, for a molded joint comprising a socket for receiving bonding material.  
276, for a socket wherein a deforming element contacts the bottom thereof.
- SEE OR SEARCH CLASS:  
279, Chucks and Sockets, subclasses 9.1+ for a connection between a holder and an object such as a tool, workpiece or rodlike body comprising a socket within the holder.
- 362** This subclass is indented under subclass 345. Structure wherein the members are radially related and one of the members has associated therewith a screw, which, when tightened, exerts a radial thrust against the other member.
- 363** This subclass is indented under subclass 345. Structure wherein the members comprise a pair of angle or channel shaped bars which are interfitted in face to face relation.
- 364** This subclass is indented under subclass 345. Structure wherein the ends of the members comprise a plurality of intermeshing projections.
- 365** This subclass is indented under subclass 345. Structure wherein a distinct component is interposed between two radially related members and separates a portion of one member from a portion of the other member.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
225+, for a flexible joint comprising an elastomeric component interposed between two radially spaced members.  
243, for a side engaging shim or bushing radially interposed between a rod end and an aperture in the side of a member through which the rod extends.  
350+, for a similar component which also functions as a rotary binding cam or wedge.
- 366** This subclass is indented under subclass 365. Structure wherein the component biased into engagement with one of the members by a distinct transversely acting means.
- 367** This subclass is indented under subclass 365. Structure wherein the component is a wedge or cam.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
351, for similar structure associated with a rotary binding cam or wedge.
- 368** This subclass is indented under subclass 367. Structure wherein the wedge or cam is engaged by movement thereof in a direction axial of one of the members.
- 369** This subclass is indented under subclass 368. Structure wherein the wedge or cam comprises a plurality of circumferentially related segments.
- 370** This subclass is indented under subclass 368. Structure including a threaded component for actuating the wedge or cam.

- 371** This subclass is indented under subclass 368. Structure wherein the wedge or cam is a split or slotted bushing.
- 372** This subclass is indented under subclass 365. Structure wherein the component is resilient.
- 373** This subclass is indented under subclass 345. Structure comprising clamping means for securing the members together.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
350+, for a rotary binding cam or wedge.
- 374.1 By wedge or cam:**  
This subclass is indented under subclass 373. Subject matter including an eccentric or tapered means intended to secure or lock the members in place.
- 374.2 Having actuator:**  
This subclass is indented under subclass 374.1. Subject matter including a means intended to engage the locking means.
- 374.3 Threaded actuator:**  
This subclass is indented under subclass 374.2. Subject matter including a means having a helical or spiral ridge, intended to secure the locking means.
- 374.4 Axially oriented:**  
This subclass is indented under subclass 374.3. Subject matter wherein the means with the helical or spiral ridge is positioned parallel to the axis of two or more interfitted members.
- 374.5 Lever actuator:**  
This subclass is indented under subclass 374.2. Subject matter including an elongate member which is pivoted on a fulcrum that serves as the actuator.
- 375** This subclass is indented under subclass 345. Structure comprising a protuberance, depression, or slot on the periphery of one member which is essential to the joint.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
362, for a flat or recessed portion on a rod for engaging a set screw.
- 376** This subclass is indented under subclass 345. Structure wherein the members are provided with additional means (a) to secure them together or (b) to retain them in interfitted relationship.
- 377** This subclass is indented under subclass 376. Structure wherein the members are in telescoping relation.
- 378** This subclass is indented under subclass 377. Structure wherein the additional means comprises a transverse pin.
- 379.1 Multiple retainers:**  
This subclass is indented under subclass 378. Subject matter including two or more transverse pins.
- 379.2 Having means to prevent removal of retainer:**  
This subclass is indented under subclass 378. Subject matter including a means such as a hitch-pin or spring clip to lock the transverse pin in place.
- 379.3 Bolt, rivet or screw:**  
This subclass is indented under subclass 378. Subject matter including a head and a shank is either screwed into a mating threaded hole or peened into a nonthreaded hole.
- 379.4 Wedge pin:**  
This subclass is indented under subclass 378. Subject matter wherein the pin is wedged or tapered and must be forced or driven into a connecting hole.
- 379.5 Sliding pin:**  
This subclass is indented under subclass 378. Subject matter wherein the pin is slid into place with minimal effort.
- 379.6 Expansible retainer:**  
This subclass is indented under subclass 378. Subject matter wherein the pin is capable of expanding in dimension (e.g., cotter pin, etc.).
- 380** This subclass is indented under subclass 376. Structure wherein the members are interfitted in side-to-side relation.

- 381** This subclass is indented under subclass 345. Structure wherein one of the members comprises a tenon having a reduced neck portion and an enlarged head portion fitted in a correspondingly shaped recess in the other member.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
331, for a side slide-type joint between elongated colinear members.
- SEE OR SEARCH CLASS:  
433, Dentistry, subclasses 181+ and 209 for dovetail or pin-head-type connections between artificial teeth or artificial tooth portions.
- 382** This subclass is indented under subclass 345. Structure wherein the members are disposed at an angle to each other.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
347, for interfitting crossing rods.  
400, for crossing rods.
- 383** This subclass is indented under subclass 345. Structure wherein one of the members is a rod and a noncircular section of the rod is essential to the joint.
- 384** This subclass is indented under the class definition. Structure comprising a joint between the side of a rod and the side of another rod or a plate.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
188, for an intermediate member joining a rod side and another rod side or a plate by independent connections.  
230+, wherein side characteristics of a rod are utilized in effecting a connection with the end of another rod transverse thereto.
- 385** This subclass is indented under subclass 384. Structure wherein two rods are joined by a connector having a pair of distinct clamping means each of which is attached to a respective rod.
- 386** This subclass is indented under subclass 384. Structure comprising means for gripping or encircling a rod which means is either integral with or is attached to the plate or the other rod side by a connection which is independent of the connection between the means and the first rod.
- 387** This subclass is indented under subclass 384. Structure comprising two rods wherein at least one of the rods is provided with a flange or groove which is used in effecting the joint.
- 388** This subclass is indented under subclass 384. Structure wherein the members are joined by a connector which extends through apertures in each.
- 389** This subclass is indented under subclass 384. Structure comprising a joint between two rods which are held in laterally spaced relation.
- 390** This subclass is indented under subclass 389. Structure wherein the rods are secured by a connector comprising a separable element to maintain the rods in space relation.
- 391** This subclass is indented under subclass 389. Structure wherein the rods are joined by a connector having plural channels formed therein, each channel receiving a respective rod.
- 392** This subclass is indented under subclass 384. Structure comprising a flexible strand which is twisted or bent about the rods or the rod and plate at their intersection to secure them together.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
206+, for an axially curved or bent portion of a rod which forms a joint component.
- 393** This subclass is indented under subclass 384. Structure comprising two rods overlapped at their respective ends.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
339+, for overlapped rod ends which are interfitted and maintain a constant cross-section throughout the joint.

- 394** This subclass is indented under subclass 384. Structure wherein the members are angularly related to one another and a connector extends diagonally across the members at the joint.
- 395** This subclass is indented under subclass 384. Structure wherein two rods are joined by a connector which is in the form of a yoke, and the legs of the yoke are provided with apertures through which one rod extends, the other rod being held between the bight of the yoke and the first mentioned rod.
- 396** This subclass is indented under subclass 384. Structure comprising two rods joined by a connector which completely encompasses both of them.
- 397** This subclass is indented under subclass 384. Structure wherein the two members are secured together by a resilient clip.
- 398** This subclass is indented under subclass 384. Structure wherein the members are connected by a U-shaped connector, at least one of the members being contained within the bight thereof.
- 399** This subclass is indented under subclass 398. Structure wherein the connector comprises an open channel which receives a rod.
- 400** This subclass is indented under subclass 384. Structure wherein the members comprise a pair of crossed rods.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
346+, for interfitted crossing rods.
- 401** This subclass is indented under the class definition. Structure wherein the ends of the members are beveled or angled and are joined so that the members extend at an angle to each other.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
339+, for a scarf joint between two rods.
- 402** This subclass is indented under subclass 401. Structure wherein a part of a connecting element extends across the juncture of the members, said part being disposed on either the inner or outer peripheral surface of the members.
- 403** This subclass is indented under the class definition. Structure wherein the members extend at an angle with respect to each other.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
205, for a rigid angle coupling 383 for interfitted members joined at a rigid angle.  
401, for a mit joint
- 404** This subclass is indented under the class definition. Structure wherein at least one member is modified or particularly shaped at the locus of the connection or is made of a particular material and wherein the modification, shape, or material is essential to the connection.
- SEE OR SEARCH CLASS:  
411, Expanded, Threaded, Driven, Headed, Tool-Deformed, or Locked-Threaded Fastener, appropriate subclasses for a member modified only to provide a preformed aperture to receive a bolt, screw, nail, rivet, etc.
- 408.1** **Joining piece extending through aligned openings in plural members:**  
This subclass is indented under subclass 405.1. Subject matter comprising at least two components each having at least one aperture and the connector extends through the coaxial apertures.
- SEE OR SEARCH CLASS:  
52, Static Structures (e.g., Buildings), subclass 657 for corner joints in open-work structures there provided there provided for.  
160, Flexible or Portable Closure, Partition, or Panel, subclass 381 for corner structure of framed type panels there provided for.  
238, Railways: Surface Track, subclasses 230+ for a scarf joint between two railway track sections.

**409.1 Having a cam, wedge, or tapered portion:**

This subclass is indented under subclass 405.1. Subject matter wherein one part of the connector: has a lobe-like section; is a triangular shaped block; or is progressively narrowed toward one edge.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 314, for member wedging or camming means of distinct end coupler.
- 343, for screw or cam.
- 367, for wedging or camming of radially interposed shim or bushing for inter-fitted members.
- 374.1, for interfitted members clamped by a wedge or cam.

**410** This subclass is indented under the class definition. Structure.

#### FOREIGN ART COLLECTIONS

The definitions for FOR 100-103 below correspond to the definitions of the abolished subclasses under Class 403 from which these collections were formed. See the Foreign Art Collection schedule for specific correspondences. [**Note:** The titles and definitions for *indented* art collections include all the details of the one(s) that are hierarchically superior.]

**FOR 100 Telescoping members (403/109):**

Foreign art collection wherein one member extends into the other and is longitudinally movable therein.

**FOR 101 Having operating mechanism (403/322):**

Foreign art collection comprising two or more interrelated mechanical elements for operating the latch.

**FOR 102 By wedge or cam (403/374):**

Foreign art collection wherein the clamping means comprises a wedge or cam.

**FOR 103 Traversing member (403/379):**

Foreign art collection wherein the pin passes entirely through at least one member.

END