CPC  COOPERATIVE PATENT CLASSIFICATION

E  FIXED CONSTRUCTIONS

BUILDING

E01  CONSTRUCTION OF ROADS, RAILWAYS, OR BRIDGES

E01B  PERMANENT WAY; PERMANENT-WAY TOOLS; MACHINES FOR MAKING RAILWAYS OF ALL KINDS (derailing or rerailing blocks on track, track brakes or retarders B61K)

WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

Structure of the permanent way for railways or tramways

1/00  Ballastway; Other means for supporting the sleepers or the track; Drainage of the ballastway (draining by trenches, culverts, or conduits E01F 5/00)

1/001  .  [Track with ballast]

1/002  .  { Ballastless track, e.g. concrete slab trackway, or with asphalt layers }

1/004  .  .  { with prefabricated elements embedded in fresh concrete or asphalt }

1/005  .  .  { with sleeper shoes }

1/007  .  .  { with interlocking means to withstand horizontal forces }

1/008  .  { Drainage of track }

2/00  General structure of permanent way (railway networks B61B 1/00; foundations for pavings E01C 3/00; foundations in general E02D)

2/003  .  { Arrangement of tracks on bridges or in tunnels }

2/006  .  { Deep foundation of tracks }

3/00  Transverse or longitudinal sleepers (for switches or crossings E01B 7/22); Other means resting directly on the ballastway for supporting rails

3/02  .  made from wood (drying or impregnating B27K)

3/04  .  .  Means for preventing cleaving

3/06  .  .  .  Anti-cracking dogs

3/08  .  .  .  Straps or bands for hooping or encircling sleepers (apparatus for hooping wooden railway sleepers on the spot E01B 31/28)

3/10  .  .  Composite sleepers

3/12  .  .  Longitudinal sleepers; Longitudinal sleepers integral or combined with tie-rods; Combined longitudinal and transverse sleepers

3/14  .  .  Slabs; Blocks; Fastening tie-rods to them

3/16  .  .  made from steel

3/18  .  .  Composite sleepers

3/20  .  .  Sleeper construction for special purposes, e.g. with openings for ballast working (sleepers for shiftable track for heavy loads E01B 23/12)

3/22  .  .  Longitudinal sleepers; Longitudinal sleepers integral or combined with tie-rods; Combined longitudinal and transverse sleepers

3/24  .  .  Slabs; Blocks; Pot sleepers; Fastening tie-rods to them

3/26  .  .  combined with inserts of wood artificial stone or other material

3/28  .  .  made from concrete or from natural or artificial stone (manufacture B28)

3/30  .  .  Hollow sleepers

3/32  .  .  with armouring or reinforcement (hollow sleepers E01B 3/30)

3/34  .  .  with pre-tensioned armouring or reinforcement (pre-tensioned armouring or reinforcing elements E04C 5/00)

3/36  .  .  Composite sleepers

3/38  .  .  Longitudinal sleepers; Longitudinal sleepers integral or combined with tie-rods; Combined longitudinal and transverse sleepers; Layers of concrete supporting both rails

3/40  .  .  Slabs; Blocks; Pot sleepers; Fastening tie-rods to them

3/42  .  .  combined with inserts of wood or other material

3/44  .  .  made from other materials only if the material is essential

3/46  .  .  made from different materials (E01B 3/26, E01B 3/42 take precedence)

3/48  .  .  Distance keepers or tie-rods for sleepers

5/00  Rails; Guard rails (manufacture of rails B21B); Distance-keeping means for them

5/02  .  .  Rails

5/04  .  .  Grooved rails

5/06  .  .  Reversible or invertible rails

5/08  .  .  Composite rails; Compound rails with dismountable or non-dismountable parts

5/10  .  .  .  Composite grooved rails; Inserts for grooved rails

5/12  .  .  Rails with a foot serving as a sleeper

5/14  .  .  Rails for special parts of the track, e.g. for curves

5/16  .  .  Distance keepers

5/18  .  .  Guard rails; Connecting, fastening or adjusting means therefor

7/00  Switches; Crossings (operating mechanisms B61L)

7/02  .  .  Tongues; Associated constructions
Structure of the permanent way for railways or tramways

7/04 . Constructions with tongues turning about a vertical pivot at the end
7/06 . Constructions with flexible tongues or flexible fishplates
7/08 . Other constructions of tongues, e.g. tilting about an axis parallel to the rail, movable tongue blocks or rails
7/10 . Frogs
7/12 . Fixed frogs made of one part or composite
7/14 . with movable parts
7/16 . Jump-over frogs
7/18 . Combinations of switches and crossings
7/20 . Safety means for switches, e.g. switch point protectors, auxiliary or guiding rail members
7/22 . Special sleepers for switches or crossings; Fastening means therefor
7/24 . Heating of switches
7/26 . Lubricating of switches (lubricating of rails B61K 3/00)
7/28 . Crossings
7/30 . Jump-over crossings

9/00 Fastening rails on sleepers, or the like (fastening rails to bridges E01D 19/12)
9/02 . Fastening rails, tie-plates, or chairs directly on sleepers or foundations; Means therefor
9/04 . Fastening on wooden or concrete sleepers or on masonry without clamp members
9/06 . Railways spikes (nails in general F16B)
9/08 . Elastic spikes
9/10 . Screws or bolts for sleepers (screws or bolts in general F16B)
9/12 . Retaining or locking devices for spikes or screws
9/14 . Plugs, sleeves, thread linings, or other inserts for holes in sleepers (inserting plugs or sleeves E01B 31/26)
9/16 . for wooden sleepers
9/18 . for concrete sleepers
9/20 . by keys
9/22 . Fastening on steel sleepers without clamp members
9/24 . by keys
9/26 . Welded fastenings
9/28 . Fastening on wooden or concrete sleepers or on masonry with clamp members
9/30 . by resilient steel clips
9/303 . [the clip being a shaped bar]
9/306 . [the clip being a shaped plate]
9/32 . Fastening on steel sleepers with clamp members
9/34 . by resilient steel clips
9/36 . Metal sole-plates for rails which rails are directly fastened to sleepers
9/38 . Indirect fastening of rails by using tie-plates or chairs; Fastening of rails on the tie-plates or in the chairs
9/40 . Tie-plates for flat-bottom rails (manufacture B21)
9/42 . of two or more parts
9/44 . Fastening the rail on the tie-plate
9/46 . by clamps
9/48 . by resilient steel clips
9/483 . [the clip being a shaped bar]
9/486 . [the clip being a shaped plate]
9/50 . by keys
9/52 . by resilient keys
9/54 . Rail chairs
9/56 . for rails with two or more treads
9/58 . Fastening the rail in the chair
9/60 . Rail fastenings making use of clamps or braces supporting the side of the rail
9/62 . Rail fastenings incorporating resilient supports
9/64 . Rail fastenings gripping or encircling the sleeper
9/66 . Rail fastenings allowing the adjustment of the position of the rails, so far as not included in the preceding groups
9/68 . Pads or the like, e.g. of wood, rubber, placed under the rail, tie-plate, or chair

NOTE
If the subject to be classified has more than one characteristic, classification is made in group E01B 9/68 and indexing codes for the different characteristics are given

9/681 . [characterised by the material]
9/683 . [layered or composite]
9/685 . [characterised by their shape]
9/686 . [with textured surface]
9/688 . [with internal cavities]

11/00 Rail joints (electrical connection of the rail B60M 5/00)
11/02 . Dismountable rail joints
11/04 . Flat fishplates
11/06 . with keys or pins
11/08 . Angle fishplates
11/10 . Fishplates with parts supporting or surrounding the rail foot
11/12 . Fishplates engaging only the rail foot
11/14 . Rail foot flange clips in one piece
11/16 . Fishplates for joining rails of different sections
11/18 . Fishplates for temporarily repairing broken rails
11/20 . with gap-bridging
11/22 . by parts of the rails
11/24 . with oblique or overlapping rail ends
11/26 . with interlocking rail ends
11/28 . by parts of the joining members
11/30 . Fishplates with integral tread parts lying in the cross-section of the rail head
11/32 . by separate parts, Inserts bridging both rail heads
11/34 . [Auxiliary rail beside gap]
11/36 . Fastening means for fishplates
11/38 . [Locking means for nuts or bolts in general F16B]
11/40 . Dismountable rail joints combined with welded parts
11/42 . Joint constructions for relatively movable rails, e.g. rails on turntables, traversers, or swing bridges
11/44 . Non-dismountable rail joints; Welded joints (welding methods B23K)
11/46 . General methods for making gapless tracks
11/48 . Joints made by flame welding
11/50 . Joints made by electric welding
11/52 . Joints made by alumino-thermal welding
11/54 . Electrically-insulating rail joints
Structure of the permanent way for railways or tramways

11/56 . Special arrangements for supporting rail ends (foot supports E01B 11/08 - E01B 11/14)
11/58 . Bridge plates
11/60 . with wedges
11/62 . Bridge chairs (chairs E01B 9/54 - E01B 9/58)
13/00 . Rail anchors
17/00 . Cattle guards connected to the permanent way (grids in general for preventing cattle from straying A01K 3/00)
19/00 . Protection of permanent way against development of dust or against the effect of wind, sun, frost, or corrosion; Means to reduce development of noise (snow fences E01F 7/02, snow-ploughs E01H 8/02, watering E01H 11/00)
19/003 . (Means for reducing the development or propagation of noise)
19/006 . (Means for protecting the underground against spillage)
21/00 . Track superstructure adapted for tramways in paved streets (paving E01C 9/04, E01C 9/06)
21/02 . Special supporting means; Draining of rails
21/04 . Special fastenings, joint constructions, or tie-rods
23/00 . Easily dismountable or movable tracks, e.g. temporary railways; Details specially adapted therefor
23/02 . Tracks for light railways, e.g. for field, colliery, or mine use
23/04 . Fastening or joining means
23/06 . Switches (turntables B60S, B61J); Portable switches; Turnouts
23/08 . Temporary tracks for use while repairing tramways
23/10 . Shiftable tracks for heavy loads, e.g. carrying excavators
23/12 . Sleepers
23/14 . Fastening or joining means (fastening of rails by keys E01B 9/24)
23/16 . Switches
25/00 . Tracks for special kinds of railways (systems B61B; wheel tracks on roads E01C 9/02)
25/02 . Tracks for rack railways
25/04 . Rack rails; Supports or connections for rack rails
25/06 . Switches; Frogs; Crossings
25/08 . Tracks for mono-rails with centre of gravity of vehicle above the load-bearing rail
25/10 . Mono-rails; Auxiliary balancing rails; Supports or connections for rails
25/12 . Switches; Crossings
25/14 . Tracks for cable-drawn railway vehicles
25/15 . Switches; Crossings
25/16 . Tracks for aerial rope railways with a stationary rope
25/18 . Ropes; Supports, fastening or straining means for ropes (ropes in general D07B; masts E04H 12/00; ropes sockets F16G)
25/20 . Switches; Crossings
25/22 . Tracks for railways with the vehicle suspended from rigid supporting rails
25/24 . Supporting rails; Auxiliary balancing rails; Supports or connections for rails
25/26 . Switches; Crossings
25/28 . Rail tracks for guiding vehicles when running on road or similar surface (wheel tracks on roads E01C 9/02)
25/30 . Tracks for magnetic suspension or levitation vehicles
25/305 . (Rails or supporting constructions)
25/32 . Stators, guide rails or slide rails
25/34 . Switches; Frogs; Crossings
26/00 . Tracks or track components not covered by any of the preceding groups
26/005 . (Means for fixing posts, barriers, fences or the like to rails)

Making, maintaining, renewing, or taking-up the ballastway or the track; Tools or machines specially designed therefor (derailing or rerailing of machines B61K 5/00; removal of foreign matter from the permanent way, vegetation control applying liquids E01H)

27/00 . Placing, renewing, working, cleaning, or taking-up the ballast, with or without concurrent work on the track; Devices therefor; Packing sleepers
27/02 . Placing the ballast; Making ballastway; Redistributing ballasting material; Machines or devices therefor; Levelling means
27/021 . (by devices moving underneath the track, e.g. ballast slights)
27/022 . (by devices moving on the track with or without spreading or levelling)
27/023 . (Spreading, levelling or redistributing ballast already placed)
27/025 . (by means of non-driven tools)
27/026 . (by means of driven tools, e.g. rotating brooms or digging devices)
27/027 . (Loosening ballasting material)
27/028 . (Compacting ballasting material; Performing ballast cores or seats for sleepers)
27/04 . Removing the ballast; Machines therefor, whether or not additionally adapted for taking-up ballast (E01B 27/06, E01B 27/12 takes precedence; redistributing ballasting material E01B 27/02)
27/06 . Renewing or cleaning the ballast in situ, with or without concurrent work on the track
27/08 . the track having been taken-up (E01B 27/11 takes precedence)
27/10 . without taking-up track (E01B 27/11 takes precedence)
27/102 . (Removing unwanted material without removing the ballast)
27/105 . (the track having been lifted)
27/107 . (along between the tracks only)
27/11 . combined with concurrent renewal of track components
27/12 . Packing sleepers, with or without concurrent work on the track; Compacting track-carrying ballast
27/13 . Packing sleepers, with or without concurrent work on the track (performing ballast cores or seats for sleepers E01B 27/02)
27/14 . Manual tools or hand-held power tools therefor
27/16 . Sleeper-tamping machines
27/17 . combined with means for lifting, levelling or slewing the track
Making, maintaining, renewing, or taking-up the ballastway or the track; Tools or machines specially designed therefor

27/18 . . . by introducing additional fresh material under the sleepers, e.g. by the measured-shovel method, by the blowing method
27/20 . . Compacting the material of the track-carrying ballastway, e.g. by vibrating the track, by surface vibrators (of trackless ballastway E01B 27/02; for packing sleepers E01B 27/12)

29/00 Laying, rebuilding, or taking-up tracks; Tools or machines therefor (E01B 27/00, E01B 31/00 take precedence)

29/005 . [Making of concrete parts of the track in situ]
29/02 . Transporting, laying, removing, or renewing lengths of assembled track, assembled switches, or assembled crossings (E01B 29/04 takes precedence)
29/04 . Lifting or levelling of tracks (lifting devices in general B66F)
29/05 . Transporting, laying, removing, or renewing both rails and sleepers (as assembled units E01B 29/02)
29/06 . Transporting, laying, removing or renewing sleepers (E01B 29/05 takes precedence; carrying devices B65G 7/12)
29/09 . . . under, or from under, installed rails
29/10 . . . for inserting or removing sleepers
29/11 . . . . Removal involving destruction of the sleeper, e.g. the sectioning thereof
29/13 . . . . for moving sleepers in a direction parallel to the rails, e.g. for spacing or aligning them (E01B 29/10 takes precedence)
29/14 . . . . for lifting sleepers up to the rails (lifting devices in general B66F)
29/16 . Transporting, laying, removing, or replacing rails; Moving rails placed on sleepers in the track (E01B 29/05 takes precedence; moving or tilting heavy loads in general B65G 7/00)
29/17 . . Lengths of rails assembled into strings, e.g. welded together
29/20 . . Moving rails placed on installed sleepers in the plane track
29/22 . . Raising rails from sleepers, e.g. for inserting soleplates (lifting devices in general B66F)
29/24 . . Fixing or removing detachable fastening means or accessories thereof; Pre-assembling track components by detachable fastening means (E01B 29/02, E01B 31/26 take precedence)
29/26 . . the fastening means being spikes (E01B 29/16 takes precedence; hand-held tools for nail or staple driving or extracting B25C)
29/28 . . the fastening means being screw-and-nut type (portable apparatus for fixing or removing screws or the like B25B); Apparatus therefor, adapted to additionally drilling holes
29/29 . . . for horizontally-arranged fastening elements, e.g. fish-bolts
29/32 . Installing or removing track components, not covered by the preceding groups, e.g. sole-plates, rail anchors (E01B 31/26 takes precedence)
29/40 . . Means or arrangements for temporarily supporting laid tracks, or rails or sleepers in the track (temporary fishplates E01B 11/19)

29/42 . Undetachably joining or fastening track components in or on the track, e.g. by welding, by gluing; Pre-assembling track components by gluing; Sealing joints with filling components (E01B 31/26 takes precedence; independent heating means E01B 31/18; welding in general B23K; gluing metal parts in general E16B 11/00)
29/44 . . Methods for effecting joining of rails in the track, e.g. taking account of ambient temperature
29/46 . . Devices for holding, positioning, or urging together the rail ends (adjusting the joint by moving rails E01B 29/20)

31/00 Working rails, sleepers, baseplates, or the like, in or on the line; Machines, tools, or auxiliary devices specially designed therefor (characterised by features independent of use on assembled track B21, B23 - B25, B27)

31/02 . Working rail or other metal track components on the spot
31/04 . . Sectioning or slitting, e.g. by sawing, shearing, flame-cutting
31/06 . . Making holes, e.g. by drilling, punching, flame-cutting
31/08 . . Bending, e.g. for straightening rails or rail joints (for aligning rail ends to be welded E01B 29/46)
31/12 . . Removing metal from rails, rail joints, or baseplates, e.g. for deburring, reconditioning worn rails
31/13 . . . by milling
31/15 . . . by planing or filing
31/17 . . . by grinding
31/175 . . . . . using grinding belts
31/18 . . Reconditioning or repairing worn or damaged parts on the spot, e.g. applying inlays, building-up rails by welding (E01B 31/04 - E01B 31/12 take precedence); Heating or cooling of parts on the spot, e.g. for reducing joint gaps, for hardening rails
31/20 . . Working or treating non-metal sleepers in or on the line, e.g. marking, creosoting (working metal sleepers E01B 31/02)
31/22 . . Cutting or grinding wooden sleepers, e.g. for forming rail seats (E01B 31/24 takes precedence)
31/23 . . . Sectioning (combined with removal of segments from track E01B 29/11)
31/24 . . . Forming, treating, reconditioning, or cleaning holes in sleepers; Drilling-templates (E01B 29/28, E01B 31/26 take precedence)
31/26 . . . Inserting or removing inserts or fillings for holes in sleepers, e.g. plugs, sleeves
31/28 . . . Applying or removing anti-splitting or like reinforcing means (E01B 31/26 takes precedence; strips or bands therefor E01B 3408)

33/00 Machines or devices for shifting tracks, with or without lifting, e.g. for aligning track, for shifting excavator track (combined with sleeper packing machines E01B 27/17)
33/02 . . for slewing, i.e. transversely shifting, in steps
33/04 . . Manual tools; Devices not mounted on vehicles
33/06 . . for slewing in a continuous operation, e.g. for tracks which carry excavators
33/08 . . Boom track-slewing machines
33/10 . . Bridge track-slewing machines
33/12 . . Combined boom and bridge track-slewing machines
33/18 . . Details not peculiar to a particular type of machine
33/21 . . Arrangement or construction of rollers moving the rails

35/00 Applications of measuring apparatus or devices for track-building purposes (apparatus on locomotives or cars to indicate or record bad track sections B61K 9/00; measuring angles, linear dimensions, or irregularities in general G01B, G01C)
35/02 . . for spacing, for cross levelling; for laying-out curves
35/04 . . Wheeled apparatus
35/06 . . for measuring irregularities in longitudinal direction
35/08 . . for levelling
35/10 . . for aligning
35/12 . . for measuring movement of the track or of the components thereof under rolling loads, e.g. depression of sleepers, increase of gauge

37/00 Making, maintaining, renewing, or taking-up the ballastway or the track, not provided for in a single one of groups E01B 27/00 - E01B 35/00

2201/00 Fastening or restraining methods
2201/02 . . by wedging action
2201/04 . . by bolting, nailing or the like
2201/06 . . by eccentric or levering action
2201/08 . . by plastic or elastic deformation of fastener
2201/10 . . in alternative ways, e.g. glueing, welding, form-fits

Making, maintaining, renewing, or taking-up the ballastway or the track; Tools or machines specially designed therefor (derailing or rerailing of machines B61K 5/00; removal of foreign matter from the permanent way, vegetation control applying liquids E01H)

2202/00 Characteristics of moving parts of rail systems, e.g. switches, special frogs, tongues
2202/02 . . Nature of the movement
2202/04 . . Nature of the support or bearing
2202/06 . . Sliding
2202/08 . . Rolling
2202/06 . . with rolls on fixed part
2202/08 . . with rolls on moving part
2202/06 . . Use of friction-reducing surfaces
2202/08 . . Locking devices or mechanisms for inhibiting movement

2203/00 Devices for working the railway-superstructure
2203/01 . . with track
2203/02 . . present, i.e. in its normal position
2203/03 . . present but lifted
2203/04 . . removed or not present yet
2203/06 . . Removing or re-contouring ballast

2204/00 Characteristics of the track and its foundations
2204/01 . . Elastic layers other than rail-pads, e.g. sleeper-shoes, bitucorrete
2204/02 . . Ballast bags
2204/03 . . Injecting, mixing or spraying additives into or onto ballast or underground
2204/04 . . Direct mechanical or chemical fixing of sleepers onto underground
2204/06 . . Use of geotextiles
2204/08 . . Height or lateral adjustment means or positioning means for slabs, sleepers or rails
2204/09 . . Drainage
2204/10 . . Deep or vertical foundation
2204/12 . . Ballastless systems
2204/13 . . Making longitudinal or transverse sleepers or slabs in situ or embedding them
2204/14 . . Embedded tracks, using prefab elements or injecting or pouring a curable material
2204/16 . . Floating rails or sleepers
2204/18 . . Dowels for slabs, sleepers or rail-fixings
2204/20 . . Vegetation on or around railway-tracks
Making, maintaining, renewing, or taking-up the ballastway or the track; Tools or machines specially designed therefor

2204/15 Layout or geometry of the track
2204/16 Specific granulometry of the ballast

2205/00 Electrical insulation of railway track parts