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 3/34 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

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Structure of the permanent way for railways or tramways

Fastening rails on sleepers, or the like (fastening rails to bridges E01B 19/12)

Fastening rails on sleepers, or the like (fastening rails on sleepers or foundations; Means therefor)

9/00 Fastening rails on sleepers, or the like (fastening rails to bridges E01B 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 arrangements for fastening means (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

E01B

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 Arrangements preventing shifting of the track
13/02 . Rail anchors
15/00 Guards for preventing a person's foot being trapped in grooved rails
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 one 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 relaying 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;
27/03 . . 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 27/07, 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 (preforming 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 slew ing 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 sole-plates (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 of 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 11/18)

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; straps or bands therefor E01B 34/08)

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
Making, maintaining, renewing, or taking-up the ballastway or the track; Tools or machines specially designed therefor

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
2202/09  . . with rolls on fixed part
2202/11  . . with rolls on moving part
2202/13  . . Use of friction-reducing surfaces
2202/14  . . Locking devices or mechanisms for inhibiting movement

2203/00  Devices for working the railway-superstructure
2203/01  . . with track
2203/02  . . Removing or re-contouring ballast
2203/03  . . Displacing or storing ballast
2203/04  . . Cleaning or reconditioning ballast or ground beneath
2203/05  . . New ballast
2203/06  . . Horizontal chain
2203/08  . . Ploughs
2203/09  . . Rotating brooms

2204/00  Characteristics of the track and its foundations
2204/01  . . Elastic layers other than rail-pads, e.g. sleeper-shoes, bituconcrete
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
2204/05  . . Use of geotextiles
2204/06  . . Height or lateral adjustment means or positioning means for slabs, sleepers or rails
2204/07  . . Drainage
2204/08  . . Deep or vertical foundation
2204/09  . . Ballastless systems
2204/10  . . Making longitudinal or transverse sleepers or slabs in situ or embedding them
2204/11  . . Embedded tracks, using prefab elements or injecting or pouring a curable material
2204/12  . . Floating rails or sleepers
2204/13  . . Dowels for slabs, sleepers or rail-fixings
2204/14  . . Vegetation on or around railway-tracks
Making, maintaining, renewing, or taking-up the ballastway or the track; Tools or machines specially designed therefor

E01B

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

2205/00  Electrical insulation of railway track parts