

CPC**COOPERATIVE PATENT CLASSIFICATION****E01B**

PERMANENT WAY; PERMANENT-WAY TOOLS; MACHINES FOR MAKING RAILWAYS OF ALL KINDS (derailing or rerailling blocks on track, track brakes or retarders [B61K](#))

Guidance heading: Structure of the permanent way for railways or tramways

E01B 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](#))

- E01B 1/001 . { [Track with ballast](#) }
- E01B 1/002 . { [Ballastless track, e.g. concrete slab trackway, or with asphalt layers](#) }
- E01B 1/004 . . { [with prefabricated elements embedded in fresh concrete or asphalt](#) }
- E01B 1/005 . . { [with sleeper shoes](#) }
- E01B 1/007 . . { [with interlocking means to withstand horizontal forces](#) }
- E01B 1/008 . { [Drainage of track](#) }

E01B 2/00 **General structure of permanent way** ([railway networks B61B 1/00](#) ; foundations for pavings [E01C 3/00](#) ; foundations in general [E02D](#))

- E01B 2/003 . { [Arrangement of tracks on bridges or in tunnels](#) }
- E01B 2/006 . { [Deep foundation of tracks](#) }

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

- E01B 3/02 . made from wood ([drying or impregnating B27K](#))
- E01B 3/04 . . Means for preventing cleaving
- E01B 3/06 . . . Anti-cracking dogs
- E01B 3/08 . . . Straps or bands for hooping or encircling sleepers ([apparatus for hooping wooden railway sleepers on the spot E01B 31/28](#))
- E01B 3/10 . . Composite sleepers
- E01B 3/12 . . Longitudinal sleepers; Longitudinal sleepers integral or combined with tie-rods; Combined longitudinal and transverse sleepers
- E01B 3/14 . . Slabs; Blocks; Fastening tie-rods to them
- E01B 3/16 . made from steel
- E01B 3/18 . . Composite sleepers
- E01B 3/20 . . Sleeper construction for special purposes, e.g. with openings for ballast working ([sleepers for shiftable track for heavy loads E01B 23/12](#))

- E01B 3/22 . . Longitudinal sleepers; Longitudinal sleepers integral or combined with tie-rods; Combined longitudinal and transverse sleepers
- E01B 3/24 . . Slabs; Blocks; Pot sleepers; Fastening tie-rods to them
- E01B 3/26 . . combined with inserts of wood artificial stone or other material
- E01B 3/28 . made from concrete or from natural or artificial stone ([manufacture B28](#))
- E01B 3/30 . . Hollow sleepers
- E01B 3/32 . . with armouring or reinforcement ([hollow sleepers E01B 3/30](#))
- E01B 3/34 . . . with pre-tensioned armouring or reinforcement ([pre-tensioned armouring or reinforcing elements E04C 5/00](#))
- E01B 3/36 . . Composite sleepers
- E01B 3/38 . . Longitudinal sleepers; Longitudinal sleepers integral or combined with tie-rods; Combined longitudinal and transverse sleepers; Layers of concrete supporting both rails
- E01B 3/40 . . Slabs; Blocks; Pot sleepers; Fastening tie-rods to them
- E01B 3/42 . . combined with inserts of wood or other material
- E01B 3/44 . made from other materials only if the material is essential
- E01B 3/46 . made from different materials ([E01B 3/26](#) , [E01B 3/42 take precedence](#))
- E01B 3/48 . Distance keepers or tie-rods for sleepers
- E01B 5/00 Rails; Guard rails ([manufacture of rails B21B](#)); Distance-keeping means for them**
- E01B 5/02 . Rails
- E01B 5/04 . . Grooved rails
- E01B 5/06 . . Reversible or invertible rails
- E01B 5/08 . . Composite rails; Compound rails with dismountable or non-dismountable parts
- E01B 5/10 . . . Composite grooved rails; Inserts for grooved rails
- E01B 5/12 . . Rails with a foot serving as a sleeper
- E01B 5/14 . . Rails for special parts of the track, e.g. for curves
- E01B 5/16 . Distance keepers
- E01B 5/18 . Guard rails; Connecting, fastening or adjusting means therefor
- E01B 7/00 Switches; Crossings ([operating mechanisms B61L](#))**
- E01B 7/02 . Tongues; Associated constructions
- E01B 7/04 . . Constructions with tongues turning about a vertical pivot at the end
- E01B 7/06 . . Constructions with flexible tongues or flexible fishplates
- E01B 7/08 . . Other constructions of tongues, e.g. tilting about an axis parallel to the rail, movable tongue blocks or rails

- E01B 7/10 . Frogs
- E01B 7/12 .. Fixed frogs made of one part or composite
- E01B 7/14 .. with movable parts
- E01B 7/16 .. Jump-over frogs
- E01B 7/18 . Combinations of switches and crossings
- E01B 7/20 . Safety means for switches, e.g. switch point protectors, auxiliary or guiding rail members
- E01B 7/22 . Special sleepers for switches or crossings; Fastening means therefor
- E01B 7/24 . Heating of switches
- E01B 7/26 . Lubricating of switches ([lubricating of rails B61K 3/00](#))
- E01B 7/28 . Crossings
- E01B 7/30 .. Jump-over crossings
- E01B 9/00** **Fastening rails on sleepers, or the like ([fastening rails to bridges E01D 19/12](#))**
- E01B 9/02 . Fastening rails, tie-plates, or chairs directly on sleepers or foundations; Means therefor
- E01B 9/04 .. Fastening on wooden or concrete sleepers or on masonry without clamp members
- E01B 9/06 ... Railways spikes ([nails in general F16B](#))
- E01B 9/08 Elastic spikes
- E01B 9/10 ... Screws or bolts for sleepers ([screws or bolts in general F16B](#))
- E01B 9/12 ... Retaining or locking devices for spikes or screws
- E01B 9/14 ... Plugs, sleeves, thread linings, or other inserts for holes in sleepers ([inserting plugs or sleeves E01B 31/26](#))
- E01B 9/16 for wooden sleepers
- E01B 9/18 for concrete sleepers
- E01B 9/20 ... by keys
- E01B 9/22 .. Fastening on steel sleepers without clamp members
- E01B 9/24 ... by keys
- E01B 9/26 ... Welded fastenings
- E01B 9/28 .. Fastening on wooden or concrete sleepers or on masonry with clamp members
- E01B 9/30 ... by resilient steel clips
- E01B 9/303 { the clip being a shaped bar }
- E01B 9/306 { the clip being a shaped plate }
- E01B 9/32 .. Fastening on steel sleepers with clamp members
- E01B 9/34 ... by resilient steel clips
- E01B 9/36 .. Metal sole-plates for rails which rails are directly fastened to sleepers

- E01B 9/38 . Indirect fastening of rails by using tie-plates or chairs; Fastening of rails on the tie-plates or in the chairs
- E01B 9/40 .. Tie-plates for flat-bottom rails ([manufacture B21](#))
- E01B 9/42 ... of two or more parts
- E01B 9/44 .. Fastening the rail on the tie-plate
- E01B 9/46 ... by clamps
- E01B 9/48 by resilient steel clips
- E01B 9/483 { the clip being a shaped bar }
- E01B 9/486 { the clip being a shaped plate }
- E01B 9/50 ... by keys
- E01B 9/52 by resilient keys
- E01B 9/54 .. Rail chairs
- E01B 9/56 ... for rails with two or more treads
- E01B 9/58 .. Fastening the rail in the chair

E01B 9/60 . Rail fastenings making use of clamps or braces supporting the side of the rail

E01B 9/62 . Rail fastenings incorporating resilient supports

E01B 9/64 . Rail fastenings gripping or encircling the sleeper

E01B 9/66 . Rail fastenings allowing the adjustment of the position of the rails, so far as not included in the preceding groups

E01B 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

E01B 9/681 .. { characterised by the material }

E01B 9/683 ... { layered or composite }

E01B 9/685 .. { characterised by their shape }

E01B 9/686 ... { with textured surface }

E01B 9/688 ... { with internal cavities }

E01B 11/00 Rail joints ([electrical connection of the rail B60M 5/00](#))

E01B 11/02 . Dismountable rail joints

E01B 11/04 .. Flat fishplates

E01B 11/06 ... with keys or pins

E01B 11/08 .. Angle fishplates

- E01B 11/10 .. Fishplates with parts supporting or surrounding the rail foot
- E01B 11/12 .. Fishplates engaging only the rail foot
- E01B 11/14 .. Rail foot flange clips in one piece
- E01B 11/16 .. Fishplates for joining rails of different sections
- E01B 11/18 .. Fishplates for temporarily repairing broken rails
- E01B 11/20 .. with gap-bridging
- E01B 11/22 ... by parts of the rails
- E01B 11/24 with oblique or overlapping rail ends
- E01B 11/26 with interlocking rail ends
- E01B 11/28 ... by parts of the joining members
- E01B 11/30 Fishplates with integral tread parts lying in the cross-section of the rail head
- E01B 11/32 ... by separate parts, Inserts bridging both rail heads
- E01B 11/34 Auxiliary rail beside gap
- E01B 11/36 .. Fastening means for fishplates
- E01B 11/38 ... Loking arrangements for fastening means ([locking means for nuts or bolts in general F16B](#))
- E01B 11/40 .. Dismountable rail joints combined with welded parts

- E01B 11/42 . Joint constructions for relatively movable rails, e.g. rails on turntables, traversers, or swing bridges

- E01B 11/44 . Non-dismountable rail joints; Welded joints ([welding methods B23K](#))
- E01B 11/46 .. General methods for making gapless tracks
- E01B 11/48 .. Joints made by flame welding
- E01B 11/50 .. Joints made by electric welding
- E01B 11/52 .. Joints made by alumino-thermal welding

- E01B 11/54 . Electrically-insulating rail joints

- E01B 11/56 . Special arrangements for supporting rail ends ([foot supports E01B 11/08 to E01B 11/14](#))
- E01B 11/58 .. Bridge plates
- E01B 11/60 ... with wedges
- E01B 11/62 .. Bridge chairs ([chairs E01B 9/54 to E01B 9/58](#))

- E01B 13/00 Arrangements preventing shifting of the track**

- E01B 13/02 . Rail anchors

- E01B 15/00 Guards for preventing a person`s foot being trapped in grooved rails**

- E01B 17/00 Cattle guards connected to the permanent way ([grids in general for preventing cattle from straying A01K 3/00](#))**

- E01B 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](#))**
- E01B 19/003 . { Means for reducing the development or propagation of noise }
- E01B 19/006 . { Means for protecting the underground against spillage }
- E01B 21/00** **Track superstructure adapted for tramways in paved streets ([paving E01C 9/04](#) , [E01C 9/06](#))**
- E01B 21/02 . Special supporting means; Draining of rails
- E01B 21/04 . Special fastenings, joint constructions, or tie-rods
- E01B 23/00** **Easily dismountable or movable tracks, e.g. temporary railways; Details specially adapted therefor**
- E01B 23/02 . Tracks for light railways, e.g. for field, colliery, or mine use
- E01B 23/04 . . Fastening or joining means
- E01B 23/06 . . Switches ([turntables B60S](#) , [B61J](#)); Portable switches; Turnouts
- E01B 23/08 . Temporary tracks for use while repairing tramways
- E01B 23/10 . Shiftable tracks for heavy loads, e.g. carrying excavators
- E01B 23/12 . . Sleepers
- E01B 23/14 . . Fastening or joining means ([fastening of rails by keys E01B 9/24](#))
- E01B 23/16 . . Switches
- E01B 25/00** **Tracks for special kinds of railways ([systems B61B](#) ; [wheel tracks on roads E01C 9/02](#))**
- E01B 25/02 . Tracks for rack railways
- E01B 25/04 . . Rack rails; Supports or connections for rack rails
- E01B 25/06 . . Switches; Frogs; Crossings
- E01B 25/08 . Tracks for mono-rails with centre of gravity of vehicle above the load-bearing rail
- E01B 25/10 . . Mono-rails; Auxiliary balancing rails; Supports or connections for rails
- E01B 25/12 . . Switches; Crossings
- E01B 25/14 . Tracks for cable-drawn railway vehicles
- E01B 25/15 . . Switches; Crossings
- E01B 25/16 . Tracks for aerial rope railways with a stationary rope

- E01B 25/18 . . Ropers; Supports, fastening or straining means for ropes ([ropes in general D07B](#) ; [masts E04H 12/00](#) ; [ropes sockets F16G](#))
- E01B 25/20 . . Switches; Crossings
- E01B 25/22 . Tracks for railways with the vehicle suspended from rigid supporting rails
- E01B 25/24 . . Supporting rails; Auxiliary balancing rails; Supports or connections for rails
- E01B 25/26 . . Switches; Crossings
- E01B 25/28 . Rail tracks for guiding vehicles when running on road or similar surface ([wheel tracks on roads E01C 9/02](#))
- E01B 25/30 . Tracks for magnetic suspension or levitation vehicles
- E01B 25/305 . . { [Rails or supporting constructions](#) }
- E01B 25/32 . . Stators, guide rails or slide rails
- E01B 25/34 . . Switches; Frogs; Crossings

E01B 26/00 Tracks or track components not covered by any one of the preceding groups

- E01B 26/005 . { [Means for fixing posts, barriers, fences or the like to rails](#) }

Guidance heading: **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](#))

E01B 27/00 Placing, renewing, working, cleaning, or taking-up the ballast, with or without concurrent work on the track; Devices therefor; Packing sleepers

- E01B 27/02 . Placing the ballast; Making ballastway; Redistributing ballasting material; Machines or devices therefor; Levelling means
- E01B 27/021 . . { [by devices moving underneath the track, e.g. ballast sleighs](#) }
- E01B 27/022 . . { [by devices moving on the track with or without spreading or levelling](#) }
- E01B 27/023 . . { [Spreading, levelling or redistributing ballast already placed](#) }
- E01B 27/025 . . . { [by means of non-driven tools](#) }
- E01B 27/026 . . . { [by means of driven tools, e.g. rotating brooms or digging devices](#) }
- E01B 27/027 . . { [Loosening ballasting material](#) }
- E01B 27/028 . . { [Compacting ballasting material; Performing ballast cores or seats for sleepers](#) }
- E01B 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](#))
- E01B 27/06 . Renewing or cleaning the ballast in situ, with or without concurrent work on the track
- E01B 27/08 . . the track having been taken-up ([E01B 27/11](#) takes precedence)
- E01B 27/10 . . without taking-up track ([E01B 27/11](#) takes precedence)

- E01B 27/102 . . . { Removing unwanted material without removing the ballast }
- E01B 27/105 . . . { the track having been lifted }
- E01B 27/107 . . . { along between the tracks only }
- E01B 27/11 . . combined with concurrent renewal of track components

- E01B 27/12 . Packing sleepers, with or without concurrent work on the track; Compacting track-carrying ballast
- E01B 27/13 . . Packing sleepers, with or without concurrent work on the track ([preforming ballast cores or seats for sleepers E01B 27/02](#))
- E01B 27/14 . . . Manual tools or hand-held power tools therefor
- E01B 27/16 . . . Sleeper-tamping machines
- E01B 27/17 combined with means for lifting, levelling or slewing the track
- E01B 27/18 by introducing additional fresh material under the sleepers, e.g. by the measured-shovel method, by the blowing method
- E01B 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](#))

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

- E01B 29/005 . { Making of concrete parts of the track in situ }
- E01B 29/02 . Transporting, laying, removing, or renewing lengths of assembled track, assembled switches, or assembled crossings ([E01B 29/04](#) takes precedence)
- E01B 29/04 . Lifting or levelling of tracks ([lifting devices in general B66F](#))
- E01B 29/05 . Transporting, laying, removing, or renewing both rails and sleepers ([as assembled units E01B 29/02](#))
- E01B 29/06 . Transporting, laying, removing or renewing sleepers ([E01B 29/05](#) takes precedence; [carrying devices B65G 7/12](#))
- E01B 29/09 . . under, or from under, installed rails
- E01B 29/10 . . . for inserting or removing sleepers
- E01B 29/11 Removal involving destruction of the sleeper, e.g. the sectioning thereof
- E01B 29/13 . . . for moving sleepers in a direction parallel to the rails, e.g. for spacing or aligning them ([E01B 29/10](#) takes precedence)
- E01B 29/14 . . . for lifting sleepers up to the rails ([lifting devices in general B66F](#))
- E01B 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](#))
- E01B 29/17 . . Lengths of rails assembled into strings, e.g. welded together
- E01B 29/20 . . Moving rails placed on installed sleepers in the plane track

- E01B 29/22 . . Raising rails from sleepers, e.g. for inserting sole-plates ([lifting devices in general B66F](#))
- E01B 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](#))
- E01B 29/26 . . the fastening means being spikes ([E01B 29/16 takes precedence](#); [hand-held tools for nail or staple driving or extracting B25C](#))
- E01B 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
- E01B 29/29 . . . for horizontally-arranged fastening elements, e.g. fish-bolts
- E01B 29/32 . Installing or removing track components, not covered by the preceding groups, e.g. sole-plates, rail anchors ([E01B 31/26 takes precedence](#))
- E01B 29/40 . Means or arrangements for temporarily supporting laid tracks, or rails or sleepers in the track ([temporary fishplates E01B 11/18](#))
- E01B 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 F16B 11/00](#))
- E01B 29/44 . . Methods for effecting joining of rails in the track, e.g. taking account of ambient temperature
- E01B 29/46 . . Devices for holding, positioning, or urging together the rail ends ([adjusting the joint by moving rails E01B 29/20](#))
- E01B 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 to B25](#) , [B27](#))**
- E01B 31/02 . Working rail or other metal track components on the spot
- E01B 31/04 . . Sectioning or slitting, e.g. by sawing, shearing, flame-cutting
- E01B 31/06 . . Making holes, e.g. by drilling, punching, flame-cutting
- E01B 31/08 . . Bending, e.g. for straightening rails or rail joints ([for aligning rail ends to be welded E01B 29/46](#))
- E01B 31/12 . . Removing metal from rails, rail joints, or baseplates, e.g. for deburring welds, reconditioning worn rails
- E01B 31/13 . . . by milling
- E01B 31/15 . . . by planing or filing
- E01B 31/17 . . . by grinding
- E01B 31/175 { [using grinding belts](#) }
- E01B 31/18 . . Reconditioning or repairing worn or damaged parts on the spot, e.g. applying inlays, building-up rails by welding ([E01B 31/04 to E01B 31/12 take precedence](#)); Heating or cooling of parts on the spot, e.g. for reducing joint gaps, for hardening rails

E01B 31/20	. Working or treating non-metal sleepers in or on the line, e.g. marking, creosoting (working metal sleepers E01B 31/02)
E01B 31/22	.. Cutting or grinding wooden sleepers, e.g. for forming rail seats (E01B 31/24 takes precedence)
E01B 31/23	... Sectioning (combined with removal of segments from track E01B 29/11)
E01B 31/24	.. Forming, treating, reconditioning, or cleaning holes in sleepers; Drilling-templates (E01B 29/28 , E01B 31/26 take precedence)
E01B 31/26	.. Inserting or removing inserts or fillings for holes in sleepers, e.g. plugs, sleeves
E01B 31/28	.. Applying or removing anti-splitting or like reinforcing means (E01B 31/26 takes precedence ; straps or bands therefor E01B 3/08)
E01B 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)
E01B 33/02	. for slewing, i.e. transversely shifting, in steps
E01B 33/04	.. Manual tools; Devices not mounted on vehicles
E01B 33/06	. for slewing in a continuous operation, e.g. for tracks which carry excavators
E01B 33/08	.. Boom track-slewing machines
E01B 33/10	.. Bridge track-slewing machines
E01B 33/12	.. Combined boom and bridge track-slewing machines
E01B 33/18	.. Details not peculiar to a particular type of machine
E01B 33/21	... Arrangement or construction of rollers moving the rails
E01B 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)
E01B 35/02	. for spacing, for cross levelling; for laying-out curves
E01B 35/04	.. Wheeled apparatus
E01B 35/06	. for measuring irregularities in longitudinal direction
E01B 35/08	.. for levelling
E01B 35/10	.. for aligning
E01B 35/12	. for measuring movement of the track or of the components thereof under rolling loads, e.g. depression of sleepers, increase of gauge
E01B 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 to E01B 35/00

E01B 2201/00 **Fastening or restraining methods**

- E01B 2201/02 . by wedging action
- E01B 2201/04 . by bolting, nailing or the like
- E01B 2201/06 . by eccentric or levering action
- E01B 2201/08 . by plastic or elastic deformation of fastener
- E01B 2201/10 . in alternative ways, e.g. glueing, welding, form-fits

Guidance heading: **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](#))

E01B 2202/00 Characteristics of moving parts of rail systems, e.g. switches, special frogs, tongues

- E01B 2202/02 . Nature of the movement
- E01B 2202/021 .. Turning or tilting or elastically bending
- E01B 2202/022 ... about horizontal axis
- E01B 2202/024 ... about vertical axis
- E01B 2202/025 .. Pure translation
- E01B 2202/027 .. Including a component perpendicular to the plane of the rails
- E01B 2202/028 ... Movement along an inclined surface
- E01B 2202/04 . Nature of the support or bearing
- E01B 2202/042 .. Sliding
- E01B 2202/044 .. Rolling
- E01B 2202/046 ... with rolls on fixed part
- E01B 2202/048 ... with rolls on moving part
- E01B 2202/06 .. Use of friction-reducing surfaces
- E01B 2202/08 . Locking devices or mechanisms for inhibiting movement

E01B 2203/00 Devices for working the railway-superstructure

- E01B 2203/01 . with track
- E01B 2203/012 .. present, i.e. in its normal position
- E01B 2203/015 .. present but lifted
- E01B 2203/017 .. removed or not present yet
- E01B 2203/02 . Removing or re-contouring ballast
- E01B 2203/021 .. Blowing

- E01B 2203/022 .. Horizontal chain
- E01B 2203/024 .. Inclined chain
- E01B 2203/025 .. Suction
- E01B 2203/027 .. Sweeping
- E01B 2203/028 .. Alternative ways

- E01B 2203/03 . Displacing or storing ballast
- E01B 2203/032 .. with special use or configuration of conveyor belts
- E01B 2203/034 .. using storing containers
- E01B 2203/036 ... fixed to vehicle
- E01B 2203/038 ... detachable from the vehicle

- E01B 2203/04 . Cleaning or reconditioning ballast or ground beneath
- E01B 2203/042 .. in situ, e.g. vacuum-cleaners
- E01B 2203/045 .. the ballast having been taken up
- E01B 2203/047 .. Adding material, e.g. tar, glue, protective layers

- E01B 2203/06 . Placing ballast
- E01B 2203/062 .. New ballast
- E01B 2203/065 .. Re-use of ballast
- E01B 2203/067 .. Special methods for posing or quantifying ballast

- E01B 2203/08 . Levelling ballast or ground beneath
- E01B 2203/083 .. Ploughs
- E01B 2203/086 .. Rotating brooms

- E01B 2203/10 . Track-lifting or-lining devices or methods

- E01B 2203/12 . Tamping devices
- E01B 2203/122 .. for straight track
- E01B 2203/125 .. adapted for switches or crossings
- E01B 2203/127 .. vibrating the track surface

- E01B 2203/14 . Way of locomotion or support
- E01B 2203/141 .. on the track to be treated
- E01B 2203/143 .. on a side-track
- E01B 2203/145 .. on the ballast
- E01B 2203/146 .. using other means than driven wheels as propulsion means
- E01B 2203/148 .. having wheelsets that can be displaced horizontally or vertically

- E01B 2203/15 . Reducing impact of devices on environment

- E01B 2203/16 . Guiding or measuring means, e.g. for alignment, canting, stepwise propagation

E01B 2203/17 . continually advancing

E01B 2204/00 Characteristics of the track and its foundations

E01B 2204/01 . Elastic layers other than rail-pads, e.g. sleeper-shoes, bituconcrete

E01B 2204/02 . Ballast bags

E01B 2204/03 . Injecting, mixing or spraying additives into or onto ballast or underground

E01B 2204/04 . Direct mechanical or chemical fixing of sleepers onto underground

E01B 2204/05 . Use of geotextiles

E01B 2204/06 . Height or lateral adjustment means or positioning means for slabs, sleepers or rails

E01B 2204/07 . Drainage

E01B 2204/08 . Deep or vertical foundation

E01B 2204/09 . Ballastless systems

E01B 2204/10 . Making longitudinal or transverse sleepers or slabs in situ or embedding them

E01B 2204/11 . Embedded tracks, using prefab elements or injecting or pouring a curable material

E01B 2204/12 . Floating rails or sleepers

E01B 2204/13 . Dowels for slabs, sleepers or rail-fixings

E01B 2204/14 . Vegetation on or around railway-tracks

E01B 2204/15 . Layout or geometry of the track

E01B 2204/16 . Specific granulometry of the ballast

E01B 2205/00 Electrical insulation of railway track parts