

## SECTION E — FIXED CONSTRUCTIONS

## 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; removal of foreign matter from the permanent way, vegetation control, applying liquids E01H)

**Subclass index**

## STRUCTURE OF THE PERMANENT WAY

General structure.....	2/00
Ballastway, transverse or longitudinal sleepers.....	1/00, 3/00
Rails or switches for general application.....	5/00-13/00, 26/00
Rails or switches for particular application.....	21/00-26/00
Protective arrangements.....	15/00-19/00
MAKING, MAINTAINING, RENEWING, OR TAKING-UP THE BALLASTWAY OR THE TRACK.....	27/00-37/00

**Structure of the permanent way for railways or tramways**

	3/32	• • with armouring or reinforcement (hollow sleepers E01B 3/30)
<b>1/00 Ballastway; Other means for supporting the sleepers or the track; Drainage of the ballastway</b> (draining by trenches, culverts, or conduits E01F 5/00)	3/34	• • • with pre-tensioned armouring or reinforcement (pre-tensioned armouring or reinforcing elements E04C 5/00)
<b>2/00 General structure of permanent way</b> (railway networks B61B 1/00; foundations for pavings E01C 3/00; foundations in general E02D)	3/36 3/38	• • Composite sleepers • • Longitudinal sleepers; Longitudinal sleepers integral or combined with tie-rods; Combined longitudinal and transverse sleepers; Layers of concrete supporting both rails
<b>3/00 Transverse or longitudinal sleepers</b> (for switches or crossings E01B 7/22); <b>Other means resting directly on the ballastway for supporting rails</b>	3/40	• • Slabs; Blocks; Pot sleepers; Fastening tie-rods to them
3/02 • made from wood (drying or impregnating B27K)	3/42	• • combined with inserts of wood or other material
3/04 • • Means for preventing cleaving	3/44	• made from other materials only if the material is essential
3/06 • • • Anti-cracking dogs	3/46	• made from different materials (E01B 3/26, E01B 3/42 take precedence)
3/08 • • • Straps or bands for hooping or encircling sleepers (apparatus for hooping wooden railway sleepers on the spot E01B 31/28)	3/48	• Distance keepers or tie-rods for sleepers
3/10 • • Composite sleepers	<b>5/00</b>	<b>Rails; Guard rails</b> (manufacture of rails B21B); <b>Distance-keeping means for them</b>
3/12 • • Longitudinal sleepers; Longitudinal sleepers integral or combined with tie-rods; Combined longitudinal and transverse sleepers	5/02	• Rails
3/14 • • Slabs; Blocks; Fastening tie-rods to them	5/04	• • Grooved rails
3/16 • made from steel	5/06	• • Reversible or invertible rails
3/18 • • Composite sleepers	5/08	• • Composite rails; Compound rails with dismountable or non-dismountable parts
3/20 • • Sleeper construction for special purposes, e.g. with openings for ballast working (sleepers for shiftable track for heavy loads E01B 23/12)	5/10	• • • Composite grooved rails; Inserts for grooved rails
3/22 • • Longitudinal sleepers; Longitudinal sleepers integral or combined with tie-rods; Combined longitudinal and transverse sleepers	5/12	• • Rails with a foot serving as a sleeper
3/24 • • Slabs; Blocks; Pot sleepers; Fastening tie-rods to them	5/14	• • Rails for special parts of the track, e.g. for curves
3/26 • • combined with inserts of wood, artificial stone, or other material	5/16	• Distance keepers
3/28 • made from concrete or from natural or artificial stone (manufacture B28)	5/18	• Guard rails; Connecting, fastening or adjusting means therefor
3/30 • • Hollow sleepers	<b>7/00</b>	<b>Switches; Crossings</b> (operating mechanisms B61L)
	7/02	• Tongues; Associated constructions
	7/04	• • Constructions with tongues turning about a vertical pivot at the end

## E01B

- 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
- 9/32
  - • 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 thereof 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
- 9/50
  - • • 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 or head 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 covered by the preceding groups
- 9/68
  - Pads or the like, e.g. of wood, rubber, placed under the rail, tie-plate, or chair
- 11/00 Rail joints** (electrical connection of rails 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 the 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
- 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)

<p><b>21/00 Track superstructure specially adapted for tramways in paved streets</b> (paving E01C 9/04, E01C 9/06)</p> <p>21/02 • Special supporting means; Draining of rails</p> <p>21/04 • Special fastenings, joint constructions, or tie-rods</p> <p><b>23/00 Easily dismantlable or movable tracks, e.g. temporary railways; Details specially adapted therefor</b></p> <p>23/02 • Tracks for light railways, e.g. for field, colliery, or mine use</p> <p>23/04 • • Fastening or joining means</p> <p>23/06 • • Switches (turntables B60S, B61J); Portable switches; Turnouts</p> <p>23/08 • Temporary tracks for use while repairing tramways</p> <p>23/10 • Shiftable tracks for heavy loads, e.g. carrying excavators</p> <p>23/12 • • Sleepers</p> <p>23/14 • • Fastening or joining means (fastening of rails by keys E01B 9/24)</p> <p>23/16 • • Switches</p> <p><b>25/00 Tracks for special kinds of railways</b> (systems B61B; wheel tracks on roads E01C 9/02)</p> <p><b>Note(s)</b></p> <p>In this group, the following term is used with the meaning indicated:</p> <ul style="list-style-type: none"> <li>• "track" includes non-load-carrying guide rails.</li> </ul> <p>25/02 • Tracks for rack railways</p> <p>25/04 • • Rack rails; Supports or connections for rack rails</p> <p>25/06 • • Switches; Frogs; Crossings</p> <p>25/08 • Tracks for mono-rails with centre of gravity of vehicle above the load-bearing rail (E01B 25/30 takes precedence) [1, 7]</p> <p>25/10 • • Mono-rails; Auxiliary balancing rails; Supports or connections for rails</p> <p>25/12 • • Switches; Crossings</p> <p>25/14 • Tracks for cable-drawn railway vehicles</p> <p>25/15 • • Switches; Crossings</p> <p>25/16 • Tracks for aerial rope railways with a stationary rope</p> <p>25/18 • • Ropes; Supports, fastening or straining means for ropes (ropes in general D07B; masts E04H 12/00; rope sockets F16G)</p> <p>25/20 • • Switches; Crossings</p> <p>25/22 • Tracks for railways with the vehicle suspended from rigid supporting rails</p> <p>25/24 • • Supporting rails; Auxiliary balancing rails; Supports or connections for rails</p> <p>25/26 • • Switches; Crossings</p> <p>25/28 • Rail tracks for guiding vehicles when running on road or similar surface (wheel tracks on roads E01C 9/02)</p> <p>25/30 • Tracks for magnetic suspension or levitation vehicles [7]</p> <p>25/32 • • Stators, guide rails or slide rails [7]</p> <p>25/34 • • Switches; Frogs; Crossings [7]</p> <p><b>26/00 Tracks or track components not covered by any one of main groups E01B 1/00-E01B 25/00</b></p>	<p><b><u>Making, maintaining, renewing, or taking-up the ballastway or the track; Tools or machines specially designed therefor</u></b></p> <p><b>27/00 Placing, renewing, working, cleaning, or taking-up the ballast, with or without concurrent work on the track; Devices therefor; Packing sleepers</b></p> <p>27/02 • Placing the ballast; Making the ballastway; Redistributing ballasting material; Machines or devices therefor; Levelling means</p> <p>27/04 • Removing the ballast; Machines therefor, whether or not additionally adapted for taking-up ballast (E01B 27/06, E01B 27/12 take precedence; redistributing ballasting material E01B 27/02)</p> <p>27/06 • Renewing or cleaning the ballast <u>in situ</u>, with or without concurrent work on the track</p> <p>27/08 • • the track having been taken-up (E01B 27/11 takes precedence)</p> <p>27/10 • • without taking-up the track (E01B 27/11 takes precedence)</p> <p>27/11 • • combined with concurrent renewal of track components</p> <p>27/12 • Packing sleepers, with or without concurrent work on the track; Compacting track-carrying ballast</p> <p>27/13 • • Packing sleepers, with or without concurrent work on the track (performing ballast cores or seats for sleepers E01B 27/02)</p> <p>27/14 • • • Manual tools or hand-held power tools therefor</p> <p>27/16 • • • Machines therefor, e.g. so-called sleeper-tamping machines</p> <p>27/17 • • • combined with means for lifting, levelling, or slewing the track</p> <p>27/18 • • • by introducing additional fresh material under the sleepers, e.g. by the measured-shovel method, by the blowing method</p> <p>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)</p> <p><b>29/00 Laying, rebuilding, or taking-up tracks; Tools or machines therefor</b> (E01B 27/00, E01B 31/00 take precedence)</p> <p>29/02 • Transporting, laying, removing, or renewing lengths of assembled track, assembled switches, or assembled crossings (E01B 29/04 takes precedence)</p> <p>29/04 • Lifting or levelling of tracks (lifting devices in general B66F)</p> <p>29/05 • Transporting, laying, removing, or renewing both rails and sleepers (as assembled units E01B 29/02)</p> <p>29/06 • Transporting, laying, removing, or renewing sleepers (E01B 29/05 takes precedence; carrying devices B65G 7/12)</p> <p>29/09 • • under, or from under, installed rails</p> <p>29/10 • • • for inserting or removing sleepers</p> <p>29/11 • • • • Removal involving destruction of the sleeper, e.g. the sectioning thereof</p> <p>29/13 • • • for moving sleepers in a direction parallel to the rails, e.g. for spacing or aligning them (E01B 29/10 takes precedence)</p> <p>29/14 • • • for lifting sleepers up to the rails (lifting devices in general B66F)</p> <p>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)</p> <p>29/17 • • Lengths of rails assembled into strings, e.g. welded together</p>
--	---

## E01B

- 29/20 • • Moving rails placed on installed sleepers in the plane of the 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 F16B 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 welds, reconditioning worn rails
    - 31/13 • • • by milling
    - 31/15 • • • by planing or filing
    - 31/17 • • • by grinding
  - 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 3/08)
  - 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
      - 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 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**

## E01C CONSTRUCTION OF, OR SURFACES FOR, ROADS, SPORTS GROUNDS, OR THE LIKE; MACHINES OR AUXILIARY TOOLS FOR CONSTRUCTION OR REPAIR (forming road or like surfaces by compacting or grading snow or ice E01H)

### Subclass index

DESIGN; FOUNDATIONS.....	1/00, 3/00, 13/00
PAVING FOR ROADS, PLAYGROUNDS, OR THE LIKE	
Paving in general.....	5/00, 7/00
Special paving.....	9/00, 13/00, 15/00
Details.....	11/00, 17/00

CONSTRUCTION OR REPAIR OF ROADS, PLAYGROUNDS, OR THE LIKE.....21/00, 19/00, 23/00

- 1/00 Design or layout of roads, e.g. for noise abatement, for gas absorption** (design or layout of sports grounds A63C 19/00; design or layout of airfields B64F)
- 1/02 • Crossings, junctions, or interconnections between roads on the same level
- 1/04 • Road crossings on different levels; Interconnections between roads on different levels
- Structure of roads, playgrounds, sports grounds, airfields**
- 3/00 Foundations for pavings** (specially adapted for playgrounds or sports grounds E01C 13/02; foundations in general E02D)
- 3/02 • Concrete base for bituminous paving
- 3/04 • Foundations produced by soil stabilisation
- 3/06 • Methods or arrangements for protecting foundations from destructive influences of moisture, frost or vibration
- 5/00 Pavings made of prefabricated single units** (specially adapted for playgrounds or sports grounds E01C 13/04, for footpaths, sidewalks or cycle tracks E01C 15/00; making artificial stones C04B; building stones E04C; flooring E04F)
- 5/02 • made of natural stones, e.g. sett stones
- 5/04 • made of bricks
- 5/06 • made of units with cement or like binders
- 5/08 • • Reinforced units
- 5/10 • • • Prestressed reinforced units
- 5/12 • made of units with bituminous binders
- 5/14 • made of wooden units
- 5/16 • made of metallic units (steel gratings E01C 9/10)
- 5/18 • made of rubber units
- 5/20 • made of units of plastics (E01C 5/18 takes precedence)
- 5/22 • made of units composed of a mixture of materials covered by two or more of groups E01C 5/02-E01C 5/20
- 7/00 Coherent pavings made in situ** (specially adapted for playgrounds or sports grounds E01C 13/06, for footpaths, sidewalks or cycle tracks E01C 15/00)
- 7/02 • made of road-metal without binders
- 7/04 • • of broken stones, gravel, or like materials
- 7/06 • • by melting, burning, or vitrifying road-metal in situ
- 7/08 • made of road-metal and binders
- 7/10 • • of road-metal and cement or like binders (cement or like binders, composition of mortars C04B)
- 7/12 • • • Mortar-bound paving
- 7/14 • • • Concrete paving
- 7/16 • • • • Prestressed concrete paving
- 7/18 • • of road-metal and bituminous binders
- 7/20 • • • Binder incorporated in cold state, e.g. natural asphalt
- 7/22 • • • Binder incorporated in hot state, e.g. heated bitumen
- 7/24 • • • Binder incorporated as an emulsion or solution (making dispersions or emulsions for road building C04B)
- 7/26 • • • mixed with other materials, e.g. cement, rubber, leather, fibre
- 7/30 • • of road-metal and other binders, e.g. synthetic material
- 7/32 • • of courses of different kind made in situ
- 7/34 • • • made of several courses which are not bound to each other
- 7/35 • • Topping or surface dressings; Methods of mixing, impregnating, or spreading them
- 7/36 • by subjecting soil to stabilisation
- 9/00 Special pavings** (specially adapted for playgrounds or sports grounds E01C 13/00, for footpaths, sidewalks or cycle tracks E01C 15/00); **Pavings for special parts of roads or airfields** (pavement lights E01C 17/00; manholes or like covers or frames E02D 29/14)
- 9/02 • Wheel tracks (rail tracks for guiding vehicles E01B 25/28)
- 9/04 • Pavings for railroad level-crossings
- 9/06 • Pavings adjacent tramways rails
- 9/08 • Temporary pavings (steel gratings E01C 9/10)
- 9/10 • Steel gratings (gully gratings E03F 5/06; as building elements in general E04C)
- 11/00 Details of pavings**
- 11/02 • Arrangement or construction of joints; Methods of making joints; Packing for joints (sealing joints not restricted to road or airfield paving E04B 1/68)
- 11/04 • • for cement concrete paving
- 11/06 • • • Methods of making joints
- 11/08 • • • Packing of metal
- 11/10 • • • Packing of plastic or elastic materials
- 11/12 • • • Packing of metal and plastic or elastic materials
- 11/14 • • • Dowel assembly
- 11/16 • Reinforcements (for building in general E04C)
- 11/18 • • for cement concrete pavings
- 11/20 • • • for prestressed concrete pavings
- 11/22 • Gutters; Kerbs (kerbs specially adapted for informing road users E01F 9/053)
- 11/24 • Methods or arrangements for preventing slipperiness or protecting against influences of the weather
- 11/26 • • Permanently-installed heating or blowing devices
- 13/00 Pavings or foundations specially adapted for playgrounds or sports grounds** (general layout A63C 19/00)
- 13/02 • Foundations, e.g. with drainage or heating arrangements [6]
- 13/04 • Pavings made of prefabricated single units (E01C 13/08, E01C 13/10 take precedence) [6]
- 13/06 • Pavings made in situ (E01C 13/08, E01C 13/10 take precedence) [6]
- 13/08 • Surfaces simulating grass [6]
- 13/10 • for artificial surfaces for outdoor or indoor practice of snow or ice sports (E01C 13/08 takes precedence; production of snow or ice for winter sports or similar recreational purposes F25C 3/00) [6]
- 13/12 • • for snow sports [6]
- 15/00 Pavings specially adapted for footpaths, sidewalks, or cycle tracks**
- 17/00 Pavement lights, i.e. translucent constructions forming part of the surface** (blocks specially designed for marking roads E01F 9/04)

**Machines, tools or auxiliary devices for constructing or repairing the surfacing of roads or like structures**

**19/00** **Machines, tools, or auxiliary devices for preparing or distributing paving materials, for working the placed materials, or for forming, consolidating, or finishing the paving** (surface stabilisation E01C 21/00; apparatus specially adapted for reconditioning or repairing paving E01C 23/00)

- 19/02 • for preparing the materials
- 19/05 • • Crushing, pulverising, or disintegrating apparatus (in general B02C); Aggregate screening, cleaning, or heating apparatus
- 19/08 • • Apparatus for transporting and melting asphalt, bitumen, tar, or the like (stationarily-arranged melting boilers for tar, asphalt, or the like, in general C10C 3/12)
- 19/10 • • Apparatus or plants for premixing or precoating aggregate or fillers with non-hydraulic binders, e.g. with bitumen, with resins; Apparatus for premixing non-hydraulic mixtures prior to placing or for reconditioning salvaged non-hydraulic compositions
- 19/12 • for distributing granular or liquid materials (E01C 23/07 takes precedence; for filling joints or grooves E01C 23/02, E01C 23/09)
- 19/15 • • for laying-down uncoated stone or similar materials, or for striking-off or spreading same without compacting, e.g. for crushed rock base courses, sand cushions for paving (E01C 19/52 takes precedence; distributing E01C 19/20)
- 19/16 • • for applying or spreading liquid materials, e.g. bitumen slurries (E01C 19/45, E01C 23/02, E01C 23/03, E01C 23/16 take precedence; spraying or spreading liquids or other fluent materials to surfaces in general B05)
- 19/17 • • • Application by spraying
- 19/18 • • Devices for distributing road-metals mixed with binders, e.g. cement, bitumen, without consolidating or ironing effect (E01C 19/20, E01C 19/47 take precedence; conveying installations for concrete or the like B65G)
- 19/20 • • Apparatus for distributing, e.g. spreading, granular or pulverulent materials, e.g. sand, gravel, salt, dry binders (fertiliser distributors A01C 15/00)
- 19/21 • • for simultaneously but separately applying liquid material and granular or pulverulent material, e.g. bitumen and grit, with or without spreading
- 19/22 • for consolidating or finishing laid-down unset materials (E01C 23/02 takes precedence; apparatus for generating vibrations in general B06B)
- 19/23 • • Rollers therefor; Such rollers usable also for compacting soil (E01C 19/43 takes precedence; specially adapted for agricultural purposes A01B 29/00; garden rollers A01G 1/12; making or maintaining surfaces of snow or ice E01H 4/00; solely for soil compaction E02D 3/026)
- 19/24 • • • hand propelled (E01C 19/27-E01C 19/29 take precedence)
- 19/25 • • • propelled by animals or vehicles (E01C 19/26-E01C 19/29 take precedence)
- 19/26 • • • self-propelled or fitted to road vehicles (E01C 19/27-E01C 19/29 take precedence)
- 19/27 • • • with elastically-deformable rolling elements, e.g. pneumatic tyres (vibrating or impacting E01C 19/28)
- 19/28 • • • Vibrated rollers or rollers subjected to impacts, e.g. hammering blows (E01C 19/29 takes precedence)

- 19/29 • • • Rolling apparatus adapted to apply a rolling pressure less than its weight, e.g. roller finishers travelling on formrails
- 19/30 • • Tamping or vibrating apparatus other than rollers (E01C 23/02, E01C 23/04 take precedence; vibrated depositing devices E01C 19/12; tamping or vibrating rollers E01C 19/28; portable percussion tools in general B25D; tamping or vibrating soil in general E02D 3/046)
- 19/32 • • • Hand-held hand-actuated rammers or tampers
- 19/34 • • • Power-driven rammers or tampers
- 19/35 • • • • Hand-held or hand-guided tools (E01C 19/36-E01C 19/40 take precedence)
- 19/36 • • • • with direct-acting explosion chambers
- 19/38 • • • • with means specifically for generating vibrations
- 19/40 • • • • adapted to impart a smooth finish to the paving, e.g. tamping or vibrating finishers
- 19/41 • • Apparatus having both rolling tools and ramming, tamping, or vibrating tools
- 19/42 • • Machines for imparting a smooth finish to freshly-laid paving courses other than by rolling, tamping, or vibrating (for distributing only E01C 19/12)
- 19/43 • • Machines or arrangements for roughening or patterning freshly-laid paving courses, e.g. indenting rollers
- 19/44 • • Hand-actuated tools other than rollers, dampers, or vibrators, specially adapted for imparting a required surface finish to freshly-laid paving courses (E01C 19/43 takes precedence)
- 19/45 • Portable apparatus for preparing, or for preparing and applying to the road, compound liquid binders, e.g. emulsified bitumen, fluxed asphalt (applying only E01C 19/16)
- 19/46 • for preparing and placing the materials (E01C 19/45 takes precedence; making surfaces by mixing borrowed aggregate with binders E01C 21/00)
- 19/47 • • Hydraulic cement concrete mixers combined with distributing means specially adapted for road building (concrete mixers per se B28C)
- 19/48 • for laying-down the materials and consolidating them, or finishing the surface
- 19/50 • Removable forms or shutterings for road-building purposes (E01C 23/02, E01C 23/04 take precedence; permanent forms E01C 3/00-E01C 7/00; slip forms E01C 19/48); Devices or arrangements for forming individual paving elements, e.g. kerbs, in situ
- 19/52 • Apparatus for laying individual preformed surface elements, e.g. kerbs (preforming and placing continuous strip E01C 19/46; forming paving elements in situ E01C 19/50)
- 21/00** **Apparatus or processes for surface stabilisation for road building or like purposes, e.g. mixing borrowed aggregate with binder** (stabilising soil under existing surfacing E01C 23/10; soil-conditioning or soil-stabilising materials C09K 17/00; soil-consolidation in general E02D 3/12)
- 21/02 • Fusing, calcining, or burning soil in situ
- 23/00** **Auxiliary devices or arrangements for constructing, repairing, reconditioning, or taking-up road or like surfaces** (apparatus for reconditioning of salvaged non-hydraulic compositions E01C 19/10)

- 23/01 • Devices or auxiliary means for setting-out or checking the configuration of new surfacing, e.g. templates, screed supports (form rails E01C 19/50); Applications of apparatus for measuring, indicating, or recording the surface configuration of existing surfacing, e.g. profilographs (E01C 23/07 takes precedence; measuring roughness or irregularity in general G01B)
- 23/02 • Devices for making, treating, or filling grooves or like channels in not-yet-hardened paving, e.g. for joints or markings (surface patterning E01C 19/43); Removable forms therefor (non-removable forms E01C 11/02); Devices for introducing inserts or removable insert-supports in not-yet-hardened paving (E01C 23/04 takes precedence; non-removable insert supports E01C 11/02)
- 23/03 • Arrangements for curing paving; Devices for applying curing means; Devices for laying prefabricated underlay, e.g. sheets, membranes (reinforcing elements E01C 23/04); Protecting paving under construction or while curing, e.g. use of tents (road barriers E01F 13/00)
- 23/04 • Devices for laying reinforcing elements or dowel bars; Removable supports for reinforcing elements (non-removable supports therefor E01C 11/16; side forms adapted to supporting reinforcement E01C 19/50); Devices, e.g. removable forms, for making essentially horizontal ducts in paving, e.g. for prestressed reinforcement
- 23/05 • Devices for installing or removing forms
- 23/06 • Devices or arrangements for working the finished surface (working freshly-laid paving E01C 19/42-E01C 19/44, E01C 23/02; mining picks E21C 35/18); Devices for repairing the surface of damaged paving [6]
- 23/07 • • Apparatus combining measurement of the surface configuration of paving with application of material in proportion to the measured irregularities (measuring means only E01C 23/01)
- 23/08 • • for roughening or patterning; for removing high spots or material bonded to the surface, e.g. markings (removing matter not bonded to the surface E01H 1/00; roughening or detaching ice E01H 5/12)
- 23/082 • • • using non-powered tools [6]
- 23/085 • • • using power-driven tools, e.g. vibratory tools [6]
- 23/088 • • • Rotary tools, e.g. milling drums [6]
- 23/09 • • for forming cuts, grooves, or recesses, e.g. for making joints or channels for markings, for cutting-out sections to be removed; for cleaning, treating, or filling cuts, grooves, recesses, or fissures; for trimming paving edges
- 23/10 • • for raising or levelling sunken paving; for filling voids under paving; for introducing material into substructure (consolidating soil in general E02D 3/12)
- 23/12 • • for taking-up, tearing-up, or breaking-up paving (adapted to both placing and removing paving E01C 19/52)
- 23/14 • for heating or drying foundation, paving, or materials thereon, e.g. paint (E01C 23/03 takes precedence; heating or drying devices incorporated in the paving E01C 11/26; surface stabilisation by fusing, calcining, or burning soil *in situ* E01C 21/02; for street cleaning E01H 1/08; melting snow or ice on surfacing E01H 5/10)
- 23/16 • Devices for marking-out, applying, or forming traffic or like markings on finished paving (E01C 23/14 takes precedence; inserting or forming in not-yet-hardened paving E01C 23/02, in recesses formed in fully-set paving E01C 23/09; marking-out playing courts or playgrounds A63C 19/06; applying liquids or other fluent materials to surfaces in general B05; road surface markings *per se* E01F 9/04); Protecting fresh markings
- 23/18 • • for applying prefabricated markings [6]
- 23/20 • • for forming markings *in situ* [6]
- 23/22 • • • by spraying [6]
- 23/24 • • • by pouring [6]

**E01D BRIDGES** (bridges extending between terminal buildings and aircraft for embarking or disembarking passengers B64F 1/305)

### Note(s)

In this subclass, it is desirable to add the indexing codes of group E01D 101/00.

### Subclass index

BRIDGES IN GENERAL.....	1/00
BRIDGES CHARACTERISED BY THE CROSS-SECTION OF THEIR BEARING SPANNING STRUCTURE.....	2/00
BRIDGES CHARACTERISED BY THEIR STRUCTURAL TYPE.....	4/00-15/00
BRIDGES CHARACTERISED BY THEIR FUNCTION.....	18/00
DETAILS.....	19/00
ERECTING OR ASSEMBLING BRIDGES.....	21/00
REPAIRING OR STRENGTHENING EXISTING BRIDGES.....	22/00
DISMANTLING BRIDGES.....	24/00

**1/00 Bridges in general** (characterised by their structural type E01D 4/00-E01D 15/00) [6]

2/02 • of the I-girder type [6]

2/04 • of the box-girder type [6]

**2/00 Bridges characterised by the cross-section of their bearing spanning structure** [6]

**4/00 Arch-type bridges** [6]

**E01D**

- 6/00 **Truss-type bridges [6]**
  - 6/02 • of bowstring type [6]
- 11/00 **Suspension or cable-stayed bridges [6]**
  - 11/02 • Suspension bridges [6]
  - 11/04 • Cable-stayed bridges [6]
- 12/00 **Bridges characterised by a combination of structures not covered as a whole by a single one of groups E01D 2/00-E01D 11/00 [6]**
- 15/00 **Movable or portable bridges** (arrangement of ship-based outboard ramps or gangways B63B 27/14; loading ramps B65G 69/28); **Floating bridges**
  - 15/02 • Vertical lift bridges
  - 15/04 • Swing bridges
  - 15/06 • Bascule bridges; Roller bascule bridges, e.g. of Scherzer type
  - 15/08 • • Drawbridges
  - 15/10 • Travelling bridges; Sliding bridges; Rotary cylinder bridges, i.e. rotating about longitudinal axis to invert and raise the road
  - 15/12 • Portable or sectional bridges (floating bridges E01D 15/14)
  - 15/127 • • combined with ground-supported vehicles for the transport, handling or placing of such bridges or of sections thereof [6]
  - 15/133 • • built-up from readily separable standardised sections or elements, e.g. Bailey bridges (E01D 15/127 takes precedence) [6]
  - 15/14 • Floating bridges, e.g. pontoon bridges (landing bridges E01D 15/24; floating bodies or pontoons B63B) [6]
  - 15/20 • • collapsible, expandable, inflatable or the like (E01D 15/22 takes precedence) [6]
  - 15/22 • • designed as, or mounted on, vehicles [6]
  - 15/24 • Bridges or similar structures, based on land or on a fixed structure and designed to give access to ships or other floating structures [6]
- 18/00 **Bridges specially adapted for particular applications or functions not provided for elsewhere, e.g. aqueducts, bridges for supporting pipe-lines [6]**
- 19/00 **Details of bridges**
  - 19/02 • Piers; Abutments (foundations E02D)
- 19/04 • Bearings; Hinges
- 19/06 • Arrangement, construction, or bridging of expansion joints
- 19/08 • Damp-proof or other insulating layers; Drainage arrangements or devices
- 19/10 • Railings; Protectors against smoke or gases, e.g. of locomotives; Maintenance travellers; Fastening of pipes or cables to bridges
- 19/12 • Grating or flooring for bridges; Fastening railway sleepers or tracks to bridges
- 19/14 • Towers; Anchors; Saddle supports [6]
- 19/16 • Suspension cables; Cable clamps for suspension cables [6]
- 21/00 **Methods or apparatus specially adapted for erecting or assembling bridges [6]**
  - 21/06 • by translational movement of the bridge or bridge sections [6]
  - 21/08 • by rotational movement of the bridge or bridge sections [6]
  - 21/10 • Cantilevered erection [6]
- 22/00 **Methods or apparatus for repairing or strengthening existing bridges [6]**
- 24/00 **Methods or apparatus for dismantling bridges [2006.01]**

**Indexing scheme associated with groups E01D 1/00-E01D 22/00, relating to the material constitution of bridges. [6]**

- 101/00 **Material constitution of bridges [6]**

---

- 101/10 • Wood [6]
- 101/20 • Concrete, stone or stone-like material [6]
- 101/22 • • Masonry; Bricks [6]
- 101/24 • • Concrete [6]
- 101/26 • • • reinforced [6]
- 101/28 • • • • prestressed [6]
- 101/30 • Metal (E01D 101/26 takes precedence) [6]
- 101/32 • • prestressed [6]
- 101/34 • • non-ferrous, e.g. aluminium [6]
- 101/40 • Plastics [6]

**E01F ADDITIONAL WORK, SUCH AS EQUIPPING ROADS OR THE CONSTRUCTION OF PLATFORMS, HELICOPTER LANDING STAGES, SIGNS, SNOW FENCES, OR THE LIKE**

**Subclass index**

ARRANGEMENTS FOR ROADS OR RAILWAYS.....	1/00, 5/00-8/00
ARRANGEMENTS FOR FACILITATING THE USE OF ROADS.....	9/00-15/00
LANDING STAGES FOR HELICOPTERS.....	3/00

**Arrangement or construction of additional equipment for roads or railways; Landing stages for helicopters**

1/00 **Construction of platforms or refuge islands** (general arrangement of railway platforms B61B)

3/00 **Landing stages for helicopters, e.g. located above buildings** (layout of airfields B64F; buildings or like structures for special purposes E04H)

5/00 **Draining the sub-base of roads or ballastway of railways by trenches, culverts, or conduits** (underground drainage E02D; conduits for sewerage E03F)

**7/00 Devices affording protection against snow, sand drifts, side-wind effects, snowslides, avalanches or falling rocks** (permanently installed heating or blowing devices for roads E01C 11/26); **Anti-dazzle arrangements**

- 7/02 • Snow fences or similar devices, e.g. devices affording protection against sand drifts or side-wind effects (fences in general E04H 17/00)
- 7/04 • Devices affording protection against snowslides, avalanches or falling rocks, e.g. avalanche preventing structures, galleries (securing of slopes E02D 17/20; roof snow-traps E04D 13/10)
- 7/06 • Anti-dazzle arrangements (E01F 8/00 takes precedence) [3]

**8/00 Arrangements for absorbing or reflecting air transmitted noise from road or railway traffic** (ground installations for reducing aircraft noise B64F 1/26; general building constructions for absorbing or reflecting noise, noise absorption or reflection for buildings E04B 1/74) [3]

- 8/02 • specially adapted for sustaining vegetation or for accommodating plants (receptacles for cultivation of plants A01G 9/02; securing slopes or inclines E02D 17/20; retaining or protecting walls E02D 29/02) [6]

#### Arrangements for facilitating the use of roads

**9/00 Arrangement of road signs or traffic signals** (signals, signalling systems G08; signs, attachment thereof to supports G09F); **Arrangements for enforcing caution, e.g. speed bumps** [6]

- 9/011 • Upright bodies, e.g. marker posts or bollards; Supports for road signs (posts or poles in general E04H 12/00; means for attaching signs to a supporting structure in general G09F 7/18) [6]
- 9/012 • • free-standing, e.g. traffic cones, foldable or inflatable devices [6]
- 9/013 • • intended to be readily removable, e.g. for insertion into road-stud sockets (E01F 9/012 takes precedence) [6]
- 9/014 • • Storing, transporting, placing or retrieving portable devices [6]
- 9/015 • • with reflectors, e.g. with means for keeping clean [6]
- 9/016 • • illuminated (for obstructing or restricting traffic E01F 13/00) [6]
- 9/017 • • self-righting after deflection or displacement [6]
- 9/018 • • specially adapted for breaking, disengaging, collapsing or permanent deformation upon deflection or displacement, e.g. upon vehicle impact [6]
- 9/019 • • extensible, collapsible or pivotable (E01F 9/017, E01F 9/018 take precedence) [6]
- 9/03 • • Arrangements for fastening signs or signals to safety barriers or the like [6]
- 9/04 • Road surface markings; Kerbs or road edgings, specially adapted for informing road users, e.g. illuminated (for redirecting vehicles E01F 15/00) [6]

- 9/047 • • specially adapted for audible or vibrational signalling, e.g. rumble strips, or for enforcing reduced speed, e.g. speed bumps [6]
- 9/053 • • Kerbs or road edgings, specially adapted for informing road users, e.g. illuminated [6]
- 9/06 • • Traffic studs; Marking blocks
- 9/07 • • • having deflectable or displaceable parts, with or without return to original position, e.g. flexible flaps [6]
- 9/08 • • Traffic lines
- 9/087 • • • Lane delineators for physically separating traffic lanes and discouraging but not preventing crossing [6]
- 9/093 • • • movable for repeated use at different locations [6]

**11/00 Embedding pads or other sensitive devices in paving or other road surfaces** (pressure-sensitive elements G01L; traffic control systems G08G)

**13/00 Arrangements for obstructing or restricting traffic, e.g. gates, barricades** (for railway crossings B61L)

- 13/02 • free-standing [6]
- 13/04 • movable to allow or prevent passage [6]
- 13/06 • • by swinging into open position about a horizontal axis parallel to the road direction, i.e. swinging gates [6]
- 13/08 • • by swinging into closed position about a transverse axis situated in the road surface, e.g. tiltable sections of the road surface, tiltable parking posts [6]
- 13/10 • Vehicle barriers specially adapted for allowing passage in one direction only [6]
- 13/12 • for forcibly arresting or disabling vehicles, e.g. spiked mats [6]

**15/00 Safety arrangements for slowing, redirecting or stopping errant vehicles, e.g. guard posts or bollards; Arrangements for reducing damage to roadside structures due to vehicular impact** (arrangements for fastening signs or signals to safety barriers or the like E01F 9/03; for forcibly arresting vehicles E01F 13/00) [6]

- 15/02 • Continuous barriers extending along roads or between traffic lanes (crossable-lane separators E01F 9/087) [6]
- 15/04 • • essentially made of longitudinal beams or rigid strips (E01F 15/10, E01F 15/12 take precedence) [6]
- 15/06 • • essentially made of cables, nettings or the like (E01F 15/10, E01F 15/12 take precedence; protection against falling rocks E01F 7/04; arresting gear for aircraft B64F 1/02) [6]
- 15/08 • • essentially made of walls or wall-like elements (E01F 15/10, E01F 15/12 take precedence) [6]
- 15/10 • • portable, e.g. for temporary use [6]
- 15/12 • • and having means for providing occasional passage, e.g. for emergency vehicles [6]
- 15/14 • specially adapted for local protection, e.g. for bridge piers, for traffic islands [6]

E01F

**E01H STREET CLEANING; CLEANING OF PERMANENT WAYS; CLEANING BEACHES; CLEANING LAND; DISPERSING FOG IN GENERAL** (mowers convertible to apparatus for sweeping or cleaning lawns or other surfaces, e.g. to remove snow, or capable of sweeping or cleaning lawns or other surfaces A01D 42/06; cleaning in general B08B) [4]

**Subclass index**

STREET CLEANING.....1/00, 3/00, 5/00, 6/00, 11/00  
 MAKING OR MAINTAINING SURFACES OF SNOW OR ICE; IMPROVING GRIPPING POWER.....4/00, 10/00  
 CLEANING OF PERMANENT WAYS.....8/00, 11/00  
 CLEANING BEACHES.....12/00  
 OTHER CLEANING OF LAND.....15/00  
 DISPERSING FOG.....13/00

- 
- 1/00 **Removing undesirable matter from roads or like surfaces, with or without moistening of the surface** (for snow or ice E01H 5/00; cleaning tramway rails E01H 8/00; obstruction-removers on vehicles B60R 19/00; in combination with application of bitumen or the like E01C 19/16; in combination with application of traffic lines E01C 23/16)
    - 5/04 • Apparatus propelled by animal or engine power; Apparatus propelled by hand with driven dislodging or conveying elements, e.g. conveying pneumatically (E01H 5/10, E01H 5/12 take precedence)
    - 5/06 • • dislodging essentially by non-driven elements, e.g. scraper blades
    - 5/07 • • • and conveying dislodged material by driven or pneumatic means
    - 5/08 • • dislodging essentially by driven elements
    - 5/09 • • • the elements being rotary or moving along a closed circular path, e.g. rotary cutter, digging wheels
    - 5/10 • by application of heat (stationary blowing or paving-heating means E01C 11/26)
    - 5/12 • Apparatus or implements specially adapted for breaking, disintegrating, or loosening layers of ice or hard snow
  - 1/02 • Brushing apparatus (E01H 1/08-E01H 1/14 take precedence; brushes in general A46B)
  - 1/04 • • taking-up the sweepings, e.g. for collecting, for loading
  - 1/05 • • with driven brushes (E01H 1/04 takes precedence)
  - 1/08 • Pneumatically dislodging or taking-up undesirable matter (suction cleaners in general A47L 5/00-A47L 9/00); Drying by heat only, or by streams of gas (permanently-installed heating or blowing devices E01C 11/26; heating or drying for road building or repairing E01C 23/14); Cleaning by projecting abrasive particles (sand-blasting in general B24C)
  - 1/10 • Hydraulically loosening or dislodging undesirable matter (stationary flushing devices E01H 3/04); Raking or scraping apparatus (hand implements E01H 1/12)
  - 1/12 • Hand implements, e.g. litter pickers (rakes A01D 7/00)
  - 1/14 • Removing by magnetic effect
  - 3/00 **Applying liquids to roads or like surfaces, e.g. for dust control; Stationary flushing devices** (combined with removal of undesirable matter E01H 1/00; spray heads, other outlets B05B)
    - 8/00 **Removing undesirable matter from the permanent way of railways; Removing undesirable matter from tramway rails** (E01H 1/00-E01H 6/00 take precedence)
      - 8/02 • Methods or apparatus for removing ice or snow from railway tracks, e.g. using snow-ploughs (operating only on rails or flange grooves E01H 8/10)
      - 8/04 • • essentially by non-driven elements
      - 8/06 • • essentially by driven tools
      - 8/08 • • by application of heat (heated track E01B 19/00)
      - 8/10 • Removing undesirable matter from rails, flange grooves, or the like, e.g. removing ice from contact rails, removing mud from flange grooves (heating, blowing, or fluid-applying devices installed in the track E01B 19/00; built-in draining devices for rails E01B 21/02; removing ballast from rails E01B 27/04)
      - 8/12 • • specially adapted to grooved rails, flangeways, or the like
  - 3/02 • Mobile apparatus, e.g. watering-vehicles (vehicle features B60P 3/22; applying liquid materials for road paving E01C 19/16)
  - 3/04 • Fixed devices, e.g. permanently-installed flushing means (hydrants E03B 9/02)
  - 4/00 **Working on surfaces of snow or ice in order to make them suitable for traffic or sporting purposes, e.g. by compacting snow** (production of artificial snow F25C 3/04) [4]
    - 10/00 **Improving gripping of ice-bound or other slippery traffic surfaces, e.g. using gritting or thawing materials** (roughening ice by means of tools E01H 5/12; applying de-icing agents to rails E01H 8/10; thawing materials C09K 3/18; by constructional features E01C 11/24)
  - 4/02 • for sporting purposes, e.g. preparation of ski trails (production of snow or ice for winter sports or similar recreational purposes F25C 3/00) [4]
  - 5/00 **Removing snow or ice from roads or like surfaces; Grading or roughening snow or ice** (by applying de-icing agents E01H 10/00; obstruction removers on vehicles B60R 19/00; sand, gravel or salt spreaders E01C 19/20) [4]
    - 5/02 • Hand implements (E01H 5/04, E01H 5/10, E01H 5/12 take precedence)

- 11/00 Control of undesirable vegetation on roads or permanent ways of railways** (destruction of undesirable vegetation in general A01M 7/00-A01M 15/00, A01M 21/00; weeding involving working the ballast E01B 27/00); **Applying liquids, e.g. water, weed-killer, bitumen, to permanent ways** (specially to rails E01H 8/10; for preserving sleepers E01B 31/20)
- 12/00 Cleaning beaches**
- 13/00 Dispersing fog in general, e.g. on roads, on airfields**
- 15/00 Removing undesirable matter, e.g. rubbish, from the land, not otherwise provided for** (gatherers for removing stones, roots or the like from the soil A01B 43/00) [4]