

SECTION E – FIXED CONSTRUCTIONS

BUILDING

E01 CONSTRUCTION OF ROADS, RAILWAYS, OR BRIDGES (of tunnels E21D)

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

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 to 13/00, 26/00

Rails or switches for particular application	21/00 to 26/00
Protective arrangements	15/00 to 19/00

MAKING, MAINTAINING, RENEWING, OR TAKING-UP THE BALLASTWAY OR THE TRACK	27/00 to 37/00
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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)	3/34	. . . with pre-tensioned armouring or reinforcement (pre-tensioned armouring or reinforcing elements E04C 5/00)
2/00	General structure of permanent way (railway networks B61B 1/00; foundations for pavings E01C 3/00; foundations in general E02D)	3/36	. . Composite sleepers
3/00	Transverse or longitudinal sleepers (for switches or crossings E01B 7/22); Other means resting directly on the ballastway for supporting rails	3/38	. . Longitudinal sleepers; Longitudinal sleepers integral or combined with tie-rods; Combined longitudinal and transverse sleepers; Layers of concrete supporting both rails
3/02	. made from wood (drying or impregnating B27K)	3/40	. . Slabs; Blocks; Pot sleepers; Fastening tie-rods to them
3/04	. . Means for preventing cleaving	3/42	. . combined with inserts of wood or other material
3/06	. . . Anti-cracking dogs	3/44	. made from other materials only if the material is essential
3/08	. . . Straps or bands for hooping or encircling sleepers (apparatus for hooping wooden railway sleepers on the spot E01B 31/28)	3/46	. made from different materials (E01B 3/26, E01B 3/42 take precedence)
3/10	. . Composite sleepers	3/48	. Distance keepers or tie-rods for sleepers
3/12	. . Longitudinal sleepers; Longitudinal sleepers integral or combined with tie-rods; Combined longitudinal and transverse sleepers	5/00	Rails; Guard rails (manufacture of rails B21B); Distance-keeping means for them
3/14	. . Slabs; Blocks; Fastening tie-rods to them	5/02	. Rails
3/16	. made from steel	5/04	. . Grooved rails
3/18	. . Composite sleepers	5/06	. . Reversible or invertible rails
3/20	. . Sleeper construction for special purposes, e.g. with openings for ballast working (sleepers for shiftable track for heavy loads E01B 23/12)	5/08	. . Composite rails; Compound rails with dismountable or non-dismountable parts
3/22	. . Longitudinal sleepers; Longitudinal sleepers integral or combined with tie-rods; Combined longitudinal and transverse sleepers	5/10	. . . Composite grooved rails; Inserts for grooved rails
3/24	. . Slabs; Blocks; Pot sleepers; Fastening tie-rods to them	5/12	. . Rails with a foot serving as a sleeper
3/26	. . combined with inserts of wood, artificial stone, or other material	5/14	. . Rails for special parts of the track, e.g. for curves
3/28	. made from concrete or from natural or artificial stone (manufacture B28)	5/16	. Distance keepers
3/30	. . Hollow sleepers	5/18	. Guard rails; Connecting, fastening or adjusting means therefor
3/32	. . with armouring or reinforcement (hollow sleepers E01B 3/30)	7/00	Switches; Crossings (operating mechanisms B61L)
		7/02	. Tongues; Associated constructions
		7/04	. . Constructions with tongues turning about a vertical pivot at the end
		7/06	. . Constructions with flexible tongues or flexible fishplates
		7/08	. . Other constructions of tongues, e.g. tilting about an axis parallel to the rail, movable tongue blocks or rails

7/10	. Frogs	9/66	. Rail fastenings allowing the adjustment of the position of the rails, so far as not covered by the preceding groups
7/12	. . Fixed frogs made of one part or composite	9/68	. Pads or the like, e.g. of wood, rubber, placed under the rail, tie-plate, or chair
7/14	. . with movable parts	11/00	Rail joints (electrical connection of rails B60M 5/00)
7/16	. . Jump-over frogs	11/02	. Dismountable rail joints
7/18	. Combinations of switches and crossings	11/04	. . Flat fishplates
7/20	. Safety means for switches, e.g. switch point protectors, auxiliary or guiding rail members	11/06	. . . with keys or pins
7/22	. Special sleepers for switches or crossings; Fastening means therefor	11/08	. . Angle fishplates
7/24	. Heating of switches	11/10	. . Fishplates with parts supporting or surrounding the rail foot
7/26	. Lubricating of switches (lubricating of rails B61K 3/00)	11/12	. . Fishplates engaging only the rail foot
7/28	. Crossings	11/14	. . Rail foot flange clips in one piece
7/30	. . Jump-over crossings	11/16	. . Fishplates for joining rails of different sections
9/00	Fastening rails on sleepers, or the like (fastening rails to bridges E01D 19/12)	11/18	. . Fishplates for temporarily repairing broken rails
9/02	. Fastening rails, tie-plates, or chairs directly on sleepers or foundations; Means therefor	11/20	. . with gap-bridging
9/04	. . Fastening on wooden or concrete sleepers or on masonry without clamp members	11/22	. . . by parts of the rails
9/06	. . . Railways spikes (nails in general F16B)	11/24	. . . . with oblique or overlapping rail ends
9/08	. . . . Elastic spikes	11/26	. . . . with interlocking rail ends
9/10	. . . Screws or bolts for sleepers (screws or bolts in general F16B)	11/28	. . . by parts of the joining members
9/12	. . . Retaining or locking devices for spikes or screws	11/30	. . . Fishplates with integral tread parts lying in the cross-section of the rail head
9/14	. . . Plugs, sleeves, thread linings, or other inserts for holes in sleepers (inserting plugs or sleeves E01B 31/26)	11/32	. . . by separate parts; Inserts bridging both rail heads
9/16	. . . . for wooden sleepers	11/34	. . . . Auxiliary rail beside the gap
9/18	. . . . for concrete sleepers	11/36	. . Fastening means for fishplates
9/20	. . . by keys	11/38	. . . Locking arrangements for fastening means (locking means for nuts or bolts in general F16B)
9/22	. . Fastening on steel sleepers without clamp members	11/40	. . Dismountable rail joints combined with welded parts
9/24	. . . by keys	11/42	. Joint constructions for relatively movable rails, e.g. rails on turntables, traversers, or swing bridges
9/26	. . . Welded fastenings	11/44	. Non-dismountable rail joints; Welded joints (welding methods B23K)
9/28	. . Fastening on wooden or concrete sleepers or on masonry with clamp members	11/46	. . General methods for making gapless tracks
9/30	. . . by resilient steel clips	11/48	. . Joints made by flame welding
9/32	. . Fastening on steel sleepers with clamp members	11/50	. . Joints made by electric welding
9/34	. . . by resilient steel clips	11/52	. . Joints made by alumino-thermal welding
9/36	. . Metal sole-plates for rails which rails are directly fastened to sleepers	11/54	. Electrically-insulating rail joints
9/38	. Indirect fastening of rails by using tie-plates or chairs; Fastening of rails on the tie-plates or in the chairs	11/56	. Special arrangements for supporting rail ends (foot supports E01B 11/08 to E01B 11/14)
9/40	. . Tie-plates for flat-bottom rails (manufacture thereof B21)	11/58	. . Bridge plates
9/42	. . . of two or more parts	11/60	. . . with wedges
9/44	. . Fastening the rail on the tie-plate	11/62	. . Bridge chairs (chairs E01B 9/54 to E01B 9/58)
9/46	. . . by clamps	13/00	Arrangements preventing shifting of the track
9/48	. . . . by resilient steel clips	13/02	. Rail anchors
9/50	. . . by keys	15/00	Guards for preventing a person's foot being trapped in grooved rails
9/52	. . . . by resilient keys	17/00	Cattle guards connected to the permanent way (grids in general for preventing cattle from straying A01K 3/00)
9/54	. . Rail chairs	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)
9/56	. . . for rails with two or more treads	21/00	Track superstructure specially adapted for tramways in paved streets (paving E01C 9/04, E01C 9/06)
9/58	. . Fastening the rail in the chair	21/02	. Special supporting means; Draining of rails
9/60	. Rail fastenings making use of clamps or braces supporting the side or head of the rail	21/04	. Special fastenings, joint constructions, or tie-rods
9/62	. Rail fastenings incorporating resilient supports		
9/64	. Rail fastenings gripping or encircling the sleeper		

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)

Note

In this group, the following term is used with the meaning indicated:
 – “track” includes non-load-carrying guide rails.

- 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 (E01B 25/30 takes precedence) [1,7]
- 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; rope 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 [7]
- 25/32 . . Stators, guide rails or slide rails [7]
- 25/34 . . Switches; Frogs; Crossings [7]

26/00 Tracks or track components not covered by any one of main groups E01B 1/00 to E01B 25/00

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

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

- 27/02 . Placing the ballast; Making the ballastway; Redistributing ballasting material; Machines or devices therefor; Levelling means
- 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)
- 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 the track (E01B 27/11 takes precedence)
- 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 . . . Machines therefor, e.g. so-called sleeper-tamping machines
- 27/17 combined with means for lifting, levelling, or slewing the track
- 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)

- 29/02 . 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)

E01B – E01C

- 29/17 . . Lengths of rails assembled into strings, e.g. welded together
- 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 to 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 to 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 to 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
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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 to 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 . Artificial surfaces for outdoor or indoor practice of snow or ice sports (E01C 13/08 takes precedence) [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 (constructing the road bed E02D, E02F)

- 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 to E01C 19/29 take precedence)
- 19/25 . . . propelled by animals or vehicles (E01C 19/26 to E01C 19/29 take precedence)
- 19/26 . . . self-propelled or fitted to road vehicles (E01C 19/27 to 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 to 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 to 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 to 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

In this subclass, it is desirable to add the indexing codes of group E01D 101/00. [6]

Subclass Index

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

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

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

2/02 . of the I-girder type [6]

2/04 . of the box-girder type [6]

4/00	Arch-type bridges [6]	19/04	. Bearings; Hinges
6/00	Truss-type bridges [6]	19/06	. Arrangement, construction, or bridging of expansion joints (sealing joints not restricted to expansion joints for bridges E04B 1/68)
6/02	. of bowstring type [6]	19/08	. Damp-proof or other insulating layers; Drainage arrangements or devices
11/00	Suspension or cable-stayed bridges [6]	19/10	. Railings; Protectors against smoke or gases, e.g. of locomotives; Maintenance travellers; Fastening of pipes or cables to bridges (supports for pipes, cables or protective tubing, e.g. hangers, holders, clamps, cleats, clips, brackets, F16L 3/00)
11/02	. Suspension bridges [6]	19/12	. Grating or flooring for bridges; Fastening railway sleepers or tracks to bridges (sleepers E01B 3/00)
11/04	. Cable-stayed bridges [6]	19/14	. Towers; Anchors; Saddle supports [6]
12/00	Bridges characterised by a combination of structures not covered as a whole by a single one of groups E01D 2/00 to E01D 11/00 [6]	19/16	. Suspension cables; Cable clamps for suspension cables [6]
15/00	Movable or portable bridges; Floating bridges	21/00	Methods or apparatus specially adapted for erecting or assembling bridges [6]
15/02	. Vertical lift bridges	21/06	. by translational movement of the bridge or bridge sections [6]
15/04	. Swing bridges	21/08	. by rotational movement of the bridge or bridge sections [6]
15/06	. Bascule bridges; Roller bascule bridges, e.g. of Scherzer type	21/10	. Cantilevered erection [6]
15/08	. . Drawbridges	22/00	Methods or apparatus for repairing or strengthening existing bridges [6]
15/10	. Travelling bridges; Sliding bridges; Rotary cylinder bridges, i.e. rotating about longitudinal axis to invert and raise the road	24/00	Methods or apparatus for dismantling bridges [8]
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 (arrangement of ship-based ramps B63B 27/14; loading ramps B65G 69/28) [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	Structural or constructional details of bridges		
19/02	. Piers; Abutments (foundations E02D)		

Indexing scheme associated with groups E01D 1/00 to 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 to 8/00

ARRANGEMENTS FOR FACILITATING
THE USE OF ROADS.....9/00 to 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]

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	CLEANING OF PERMANENT WAYS	8/00, 11/00
MAKING OR MAINTAINING SURFACES OF SNOW OR ICE; IMPROVING GRIPPING POWER	4/00; 10/00	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)	5/06	. . dislodging essentially by non-driven elements, e.g. scraper blades
1/02	. Brushing apparatus (E01H 1/08 to E01H 1/14 take precedence; brushes in general A46B)	5/07	. . . and conveying dislodged material by driven or pneumatic means
1/04	. . taking-up the sweepings, e.g. for collecting, for loading	5/08	. . dislodging essentially by driven elements
1/05	. . with driven brushes (E01H 1/04 takes precedence)	5/09	. . . the elements being rotary or moving along a closed circular path, e.g. rotary cutter, digging wheels
1/08	. Pneumatically dislodging or taking-up undesirable matter (suction cleaners in general A47L 5/00 to 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)	5/10	. by application of heat (stationary blowing or paving-heating means E01C 11/26)
1/10	. Hydraulically loosening or dislodging undesirable matter (stationary flushing devices E01H 3/04); Raking or scraping apparatus (hand implements E01H 1/12)	5/12	. Apparatus or implements specially adapted for breaking, disintegrating, or loosening layers of ice or hard snow
1/12	. Hand implements, e.g. litter pickers (rakes A01D 7/00)	6/00	Apparatus equipped with, or having provisions for equipping with, both elements for removal of refuse or the like and elements for removal of snow or ice (E01H 8/10 takes precedence)
1/14	. Removing by magnetic effect	8/00	Removing undesirable matter from the permanent way of railways; Removing undesirable matter from tramway rails (E01H 1/00 to E01H 6/00 take precedence)
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)	8/02	. 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)
3/02	. Mobile apparatus, e.g. watering-vehicles (vehicle features B60P 3/22; applying liquid materials for road paving E01C 19/16)	8/04	. . essentially by non-driven elements
3/04	. Fixed devices, e.g. permanently-installed flushing means (hydrants E03B 9/02)	8/06	. . essentially by driven tools
4/00	Making or maintaining surfaces of snow or ice suitable for traffic or sporting purposes, e.g. by compacting snow [4]	8/08	. . by application of heat (heated track E01B 19/00)
4/02	. for sporting purposes, e.g. devices adapted for ski-trails (production of ice or snow F25C 3/00) [4]	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)
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]	8/12	. . specially adapted to grooved rails, flangeways, or the like
5/02	. Hand implements (E01H 5/04, E01H 5/10, E01H 5/12 take precedence)	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)
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)	11/00	Control of undesirable vegetation on roads or permanent ways of railways (destruction of undesirable vegetation in general A01M 7/00 to 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]