

CPC**COOPERATIVE PATENT CLASSIFICATION****E01C**

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

E01C 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](#), {of helicopter landing stages [E01F 3/00](#)})

E01C 1/002

- {Design or lay-out of roads, e.g. street systems, cross-sections ([E01C 1/005](#), [E01C 1/007](#) take precedence; of footpaths, sidewalks, berms, hard shoulders or cycle tracks [E01C 15/00](#)); Design for noise abatement, e.g. sunken road (reducing transmission of structure-born noise [E01C 3/06](#); arrangement of means for absorbing surfacings see the groups for the respective surfacings; other arrangements for absorbing or reflecting air transmitted road traffic noise, e.g. barriers [E01F 8/00](#))}

E01C 1/005

- {Means permanently installed along the road for removing or neutralising exhaust gases (collecting exhaust gases with central suction systems, e.g. in workshops or tunnels, [B08B 15/002](#))}

E01C 1/007

- {Design or auxiliary structures for compelling drivers to slow down or to proceed with caution, e.g. tortuous carriageway; Arrangements for discouraging high-speed or non-resident traffic (decelerating or arresting surfacings [E01C 9/007](#); road surface configurating or surface arrangements for enforcing reduced speed or required caution, e.g. speed-control humps [E01F 9/047](#))}

E01C 1/02

- Crossings, junctions or interconnections between roads on the same level {(construction of traffic islands [E01F 1/00](#))}

E01C 1/04

- Road crossings on different levels; Interconnections between roads on different levels

Structure of roads, playgrounds, sports grounds, airfields**E01C 3/00**

Foundations for pavings (specially adapted for playgrounds or sports grounds [E01C 13/02](#); foundations in general [E02D](#))

E01C 3/003

- {characterised by material or composition used, e.g. waste or recycled material ([E01C 3/006](#), [E01C 3/04](#) and [E01C 3/06](#) take precedence)}

E01C 3/006

- {made of prefabricated single units ([E01C 3/06](#) takes precedence)}

E01C 3/02

- Concrete base for bituminous paving

E01C 3/04

- Foundations produced by soil stabilisation {(soil stabilisation for road building in general [E01C 7/36](#))}

E01C 3/06

- Methods or arrangements for protecting foundations from destructive influence of moisture, frost or vibration {(heating devices [E01C 11/26](#); draining the subbase of roads [E01F 5/00](#))}

E01C 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](#))

- E01C 5/001 . {on prefabricated supporting structures or prefabricated foundation elements except coverings made of layers of similar elements}
- E01C 5/003 . {characterised by material or composition used for beds or joints; characterised by the way of laying}
- E01C 5/005 . {Individual couplings or spacer elements for joining the prefabricated units (E01C 5/10 takes precedence)}
- E01C 5/006 . . {Individual spacer elements}
- E01C 5/008 . {made of vegetable stems, e.g. straw, thatch (of wood E01C 5/14); made of textiles (of bituminous textile webs E01C 5/12; of linoleum E01C 5/20)}
- E01C 5/02 . made of natural stones, e.g. sett stones {(as inserts in binders or bound thereby into greater unity E01C 5/22)}
- E01C 5/04 . made of bricks {(of asphalt bricks E01C 5/12)}
- E01C 5/06 . made of units with cement or like binders
- E01C 5/065 . . {characterised by their structure or component materials, e.g. concrete layers of different structure, special additives}
- E01C 5/08 . . Reinforced units {with steel frames (with metal upper or under layers E01C 5/22)}
- E01C 5/085 . . . {on prefabricated supporting structures or prefabricated foundation elements except coverings made of layers of similar elements}
- E01C 5/10 . . . Prestressed reinforced units; {Prestressed coverings from reinforced or non-reinforced units (prestressed concrete coverings E01C 7/16)}
- E01C 5/105 {on prefabricated supporting structures or prefabricated foundation elements, except coverings made of layers of similar elements}
- E01C 5/12 . made of units with bituminous binders {or from bituminous material, e.g. asphalt mats}
- E01C 5/14 . made of wooden units
- E01C 5/16 . made of metallic units {(with a filling or ground plate of other material E01C 5/22; for temporary pavings E01C 9/083; } steel gratings E01C 9/10}
- E01C 5/18 . made of rubber units {(of units made from other material and having a rubber upper layer E01C 5/226)}
- E01C 5/20 . made of units of plastics, {e.g. concrete with plastics, linoleum} (E01C 5/18 takes precedence; {of textiles made of synthetic fibres E01C 5/008})
- E01C 5/22 . made of units composed of a mixture of materials covered by two or more of groups {E01C 5/008} , E01C 5/02 to E01C 5/20 {except embedded reinforcing materials}
- E01C 5/223 . . {on prefabricated supporting or prefabricated foundation units, except coverings made of layers of similar elements}
- E01C 5/226 . . {having an upper layer of rubber, with or without inserts of other materials; with rubber inserts}

- E01C 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)
- E01C 7/02 . made of road-metal without binders
- E01C 7/04 . . of broken stones, gravel, or like materials
- E01C 7/06 . . by melting, burning, or vitrifying road-metal in situ
- E01C 7/08 . made of road-metal and binders {(E01C 7/36 takes precedence)}

- E01C 7/085 . . {Aggregate or filler materials therefor; Coloured reflecting or luminescent additives therefor (thin surface layers or surface dressings [E01C 7/35](#))}
- E01C 7/10 . . of road-metal and cement or like binders (cement or like binders, composition of mortars [C04B](#))
- E01C 7/12 . . . Mortar-bound paving
- E01C 7/14 . . . Concrete paving {(from concrete prepared in situ [E01C 7/12](#); small individual units from concrete cast in situ [E01C 9/001](#); arrangement or construction of joints [E01C 11/04](#); reinforcements [E01C 11/18](#))}
- E01C 7/142 {Mixtures or their components, e.g. aggregate ([E01C 7/147](#), [E01C 7/355](#) take precedence; different layers of different composition [E01C 7/14](#))}
- E01C 7/145 {Sliding coverings, underlayers or intermediate layers (isolating underlayers [E01C 3/06](#); sliding layers between coverings of different materials [E01C 7/34](#)); Isolating or separating intermediate layers; Transmission of shearing force in horizontal intermediate planes, e.g. by protrusions, by inlays (anchoring new concrete wearing layers on old concrete paving [E01C 7/147](#))}
- E01C 7/147 {Repairing concrete pavings, e.g. joining cracked road sections by dowels, applying a new concrete covering (applying thin surface layers with other binder [E01C 7/35](#); repairing pavings in general [E01C 11/005](#); roughening by means of tools [E01C 11/24](#))}
- E01C 7/16 Prestressed concrete paving {(prestressed coverings from prefabricated concrete units [E01C 5/10](#); prestressed joint constructions [E01C 11/04](#); prestressed reinforcements [E01C 11/20](#))}
- E01C 7/18 . . of road-metal and bituminous binders {(for surface treatments except for penetration coverings, or for thin surface layers [E01C 7/353](#); bituminous mixtures [C08L 95/00](#))}
- E01C 7/182 . . . {Aggregate or filler materials, except those according to [E01C 7/26](#) ([E01C 7/187](#), [E01C 7/353](#) take precedence; different aggregates or fillers [E01C 7/18](#))}
- E01C 7/185 . . . {Isolating, separating or connecting intermediate layers, e.g. adhesive layers; Transmission of shearing force in horizontal intermediate planes, e.g. by protrusions ([E01C 7/187](#) takes precedence; adhesive layers for materials [E01C 7/35](#))}
- E01C 7/187 . . . {Repairing bituminous covers, e.g. regeneration of the covering material in situ, application of a new bituminous topping (application of thin surface layers with other binders [E01C 7/35](#); repairing pavings in general [E01C 11/005](#))}
- E01C 7/20 . . . Binder incorporated in cold state, e.g. natural asphalt
- E01C 7/22 . . . Binder incorporated in hot state, e.g. heated bitumen
- E01C 7/24 . . . Binder incorporated as an emulsion or solution (making dispersions or emulsions for road building [C04B](#))
- E01C 7/26 . . . mixed with other materials, e.g. cement, rubber, leather, fibre {(fibrous material reinforcements for bituminous paving [E01C 11/165](#))}
- E01C 7/262 {with fibrous material, e.g. asbestos; with animal or vegetal admixtures, e.g. leather, cork ([E01C 7/265](#) takes precedence)}
- E01C 7/265 {with rubber or synthetic resin, e.g. with rubber aggregate, with synthetic resin binder (for thin overlays or surface dressings [E01C 7/35](#))}

- E01C 7/267 {with sulfur}
 - E01C 7/30 . . of road-metal and other binders, e.g. synthetic material, {i.e resin}
 - E01C 7/32 . . of courses of different kind made in situ
- NOTE**
- This group is limited to coverings consisting of layers with different binders, except for thin intermediate or surface layers, which are classified in group [E01C 7/35](#)
- E01C 7/325 . . . {Joining different layers, e.g. by adhesive layers; Intermediate layers, e.g. for the escape of water vapour, for spreading stresses ([sliding layers E01C 7/34](#))}
 - E01C 7/34 . . . made of several courses which are not bound to each other; {[Separating means therefor, e.g. sliding layers \(in or under concrete coverings E01C 7/145\)](#)}
 - E01C 7/35 . . Toppings or surface dressings; Methods of mixing, impregnating, or spreading them {([devices therefor E01C 19/00](#); [mortar-macadam pavings E01C 7/12](#); [bituminous penetration coverings E01C 7/18](#))}
 - E01C 7/351 . . . {with exclusively hydraulical binders; Aggregate, fillers or other additives for application on or in the surface of toppings with exclusively hydraulic binders}
 - E01C 7/353 . . . {with exclusively bituminous binders; Aggregate, fillers or other additives for application on or in the surface of toppings with exclusively bituminous binders, e.g. for roughening or clearing}
 - E01C 7/355 . . . {with exclusively rubber as binder; Aggregate, fillers or other additives for application on or in the surface of toppings having exclusively rubber as binder}
 - E01C 7/356 . . . {with exclusively synthetic resin as a binder; Aggregate, fillers or other additives for application on or in the surface of toppings having exclusively synthetic resin as binder}
 - E01C 7/358 . . . {with a combination of two or more binders according to groups [E01C 7/351](#) to [E01C 7/356](#)}
 - E01C 7/36 . . by subjecting soil to stabilisation {([E01C 7/06](#) takes precedence; [foundations E01C 3/04](#); [soil conditioning or soil stabilising materials C09K 17/00](#); [soil stabilisation devices for road construction E01C 21/00](#))}
- E01C 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](#); manhole or like covers or frames [E02D 29/14](#))
- E01C 9/001 . {Paving elements formed in situ; Permanent shutterings therefor (removable shutterings [E01C 19/502](#); moulding machines therefor [E01C 19/508](#)); Inlays or reinforcements which divide the cast material in a great number of individual units (reinforcement girders which do not break the cohesion of the covering material [E01C 11/16](#), [E01C 11/185](#))}
 - E01C 9/002 . {Coverings, the surface of which consists partly of prefabricated units and partly of sections made in situ}
 - E01C 9/004 . {Pavings specially adapted for allowing vegetation ([individual spacer elements E01C 5/006](#))}

- E01C 9/005
 - {Coverings around trees forming part of the road (protecting plants in general [A01G 13/00](#))}
- E01C 9/007
 - {Vehicle decelerating or arresting surfacings or surface arrangements, e.g. arrester beds (road surface configuration or surface arrangements for enforcing reduced speed, e.g. speed-control humps [E01F 9/047](#)); Escape roads, e.g. for steep descents, for sharp bends}
- E01C 9/008
 - {Paving take-off areas for vertically starting aircraft (landing platforms for helicopters [E01F 3/00](#))}
- E01C 9/02
 - Wheel tracks (rail tracks for guiding vehicles [E01B 25/28](#))
- E01C 9/04
 - Pavings for railroad level-crossings
- E01C 9/06
 - Pavings adjacent tramways rails; {Pavings comprising railway tracks}
- E01C 9/08
 - Temporary pavings ({[E01C 9/008](#) takes precedence } ; steel gratings [E01C 9/10](#))
- E01C 9/083
 - {made of metal, e.g. plates, network}
- E01C 9/086
 - {made of concrete, wood, bitumen, rubber or synthetic material or a combination thereof}
- E01C 9/10
 - Steel gratings {; Gratings made of material other than steel} ({[E01C 9/001](#) to [E01C 9/02](#), [E01C 9/06](#) take precedence; metal gratings for bridge floorings [E01D 19/125](#); } gully gratings [E03F 5/06](#))
- E01C 11/00**
 - Details of pavings** ({[E01C 1/005](#), [E01C 5/003](#), [E01C 5/005](#), [E01C 7/145](#), [E01C 7/185](#), [E01C 7/325](#) take precedence})
- E01C 11/005
 - {Methods or materials for repairing pavings ([E01C 7/35](#) takes precedence; for concrete coverings [E01C 7/147](#); for bituminous coverings [E01C 7/187](#); devices for repair works [E01C 23/06](#); repairing bridge floorings [E01D 22/00](#))}
- E01C 11/02
 - Arrangement or construction of joints {(for pavings consisting of prefabricated units [E01C 5/00](#)); Methods of making joints {(machines therefor [E01C 23/02](#), [E01C 23/09](#); removable joint shutterings [E01C 23/021](#)); Packing for joints (sealing joints not restricted to road or airfield paving [E04B 1/68](#))}
- E01C 11/04
 - for cement concrete paving ({[E01C 9/001](#) takes precedence})
- E01C 11/045
 - {specially adapted for prestressed paving}
- E01C 11/06
 - Methods of making joints
- E01C 11/08
 - Packing of metal ({[E01C 11/045](#) takes precedence})
- E01C 11/10
 - Packing of plastic or elastic materials, {e.g. wood, resin ([E01C 11/045](#) takes precedence)}
- E01C 11/103
 - {Joints with packings prepared only in situ; Materials therefor}
- E01C 11/106
 - {Joints with only prefabricated packing; Packings therefor}
- E01C 11/12
 - Packing of metal and plastic or elastic materials ({[E01C 11/045](#) takes precedence})
- E01C 11/123
 - {Joints with only metal and in situ prepared packing or filling}
- E01C 11/126
 - {Joints with only metal and prefabricated packing or filling}
- E01C 11/14
 - Dowel assembly; {Design or construction of reinforcements in the area of joints (coupling devices for prefabricated units [E01C 5/005](#); combined with characteristic packings [E01C 11/08](#) to [E01C 11/12](#); removable holders [E01C 23/045](#))}

- E01C 11/16
 - Reinforcements {(as anchoring elements between layers [E01C 7/145](#), [E01C 7/185](#), [E01C 7/325](#)) ; for building in general [E04C](#)}
- E01C 11/165
 - • {particularly for bituminous or rubber- or plastic-bound pavings (bituminated textile webs [E01C 5/12](#))}
- E01C 11/18
 - • for cement concrete pavings {(prefabricated reinforced units [E01C 5/08](#))}
- E01C 11/185
 - • • {the reinforcements extending up to the surface, e.g. anti-slip gratings (for dividing concrete in a great number of individual units [E01C 9/001](#))}
- E01C 11/20
 - • • for prestressed concrete pavings {(from prefabricated concrete units, similar prestressed units [E01C 5/10](#))}
- E01C 11/22
 - Gutters; {Surface drainage of streets, roads or like traffic areas (for sports grounds [E01C 13/00](#))}; Kerbs {or like edging members (for sports grounds [E01C 13/00](#))}
- E01C 11/221
 - • {Kerbs or like edging members, e.g. flush kerbs, shoulder retaining means (specially adapted for guiding or warning traffic or for display purposes [E01F 9/053](#)); Joint members, connecting or load-transfer means specially for kerbs}
- E01C 11/222
 - • • {Raised kerbs, e.g. for sidewalks ([E01C 11/223](#), [E01F 9/0533](#), [E01F 9/0536](#) take precedence; preformed sidewalk paving with integral kerb [E01C 15/00](#); specially for traffic islands [E01F 1/00](#)); Integrated or portable means for facilitating ascent or descent}
- E01C 11/223
 - • • {Kerb-and-gutter structures; Kerbs with drainage openings channel or conduits, e.g. with out- or inlets, with integral gutter or with channel formed into the kerb (gutters, subsurface channels per se [E01C 11/227](#); gullies adapted to be used with kerbs, gully gratings [E03F 5/04](#), [E03F 5/06](#)); Kerbs adapted to house cables or pipes, or to form conduits}
- E01C 11/224
 - • {Surface drainage of streets (draining the subbase of roads, by trenches [E01F 5/00](#), by sewers [E03F](#); draining arrangements for bridges [E01D 19/086](#))}
- E01C 11/225
 - • • {Paving specially adapted for through-the-surfacing drainage, e.g. perforated, porous; Preformed paving elements comprising, or adapted to form, passageways for carrying off drainage ([E01C 9/004](#), [E01C 9/008](#), [E01C 9/08](#), [E01C 9/10](#), [E01C 11/228](#), [E01C 13/00](#) take precedence)}
- E01C 11/226
 - • • • {Coherent pavings}
- E01C 11/227
 - • • {Gutters; Channels ([E01C 11/223](#) takes precedence; permanently installed flushing means [E01H 3/04](#)); Roof drainage discharge ducts set in sidewalks}
- E01C 11/228
 - • • • {Gutters for porous pavings}
- E01C 11/229
 - • • • {Shallow gutters, i.e. gutters forming a minor pothole}
- E01C 11/24
 - Methods or arrangements for preventing slipperiness or protecting against influences of the weather {(measures taken in connection with the foundation [E01C 3/06](#); paving elements with anti-slip inlays [E01C 5/22](#); aggregates resisting to grinding [E01C 7/085](#), [E01C 7/142](#), [E01C 7/182](#); specially for surface layers [E01C 7/35](#); reinforcements extending up to the surface [E01C 11/16](#), [E01C 11/18](#), [E01C 11/185](#); drainage [E01C 11/22](#); windscreens [E01F 7/02](#); snow fences [E01F 7/02](#); combating fog [E01H 13/00](#))}
- E01C 11/245
 - • {for preventing ice formation or for loosening ice, e.g. special additives to the paving material, resilient coatings ([E01C 11/26](#) takes precedence; built-in sanding or sprinkling devices [E01H 10/00](#))}

- E01C 11/26
 - . Permanently installed heating or blowing devices {(specially for combating fog [E01H](#); built-in melting devices for dislodged snow [E01H 5/102](#)); Mounting thereof}
- E01C 11/265
 - . . {Embedded electrical heating elements (in floors [F24D 13/00](#)); Mounting thereof}
- E01C 13/00**
Pavings or foundations specially adapted for playgrounds or sports grounds; {Drainage, irrigation or heating of sports grounds} (general layout [A63C 19/00](#))
- E01C 13/003
 - {Construction of, or surfacings for, rinks or tracks for roller skating, skateboarding or the like (layout of roller-skating rinks [A63C 19/10](#))}
- E01C 2013/006
 - {Transportable sport surfaces for multipurpose stadiums}
- E01C 13/02
 - Foundations, e.g. with drainage or heating arrangements {([E01C 13/003](#), [E01C 13/083](#), [E01C 13/10](#) take precedence; drainage of soil [E02B 11/00](#))}
- E01C 13/04
 - Pavings made of prefabricated single units {([E01C 13/003](#), [E01C 13/06](#)), [E01C 13/08](#), [E01C 13/10](#) take precedence}
- E01C 13/045
 - . {the prefabricated single units consisting of or including bitumen, rubber or plastics}
- E01C 13/06
 - Pavings made in situ, {e.g. for sand grounds, clay courts [E01C 13/003](#)}, ([E01C 13/08](#), [E01C 13/10](#) take precedence)
- E01C 13/065
 - . {at least one in-situ-layer consisting of or including bitumen, rubber or plastics}
- E01C 13/08
 - Surfaces simulating grass; {Grass-grown sports grounds (grass-like surfaces for skiing [E01C 13/12](#))}
- E01C 13/083
 - . {Construction of grass-grown sports grounds; Drainage, irrigation or heating arrangements therefor}
- E01C 2013/086
 - . {Combination of synthetic and natural grass}
- E01C 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](#))
- E01C 13/102
 - . {Civil engineering aspects of the construction of ice rinks or sledge runs made from frozen-liquid, semi-liquid or frozen-pasty substances, e.g. portable basins}
- E01C 13/105
 - . . {of artificially refrigerated rinks or runs, e.g. cooled rink floors or swimming pools or tennis courts convertible into rinks}
- E01C 13/107
 - . {Non-frozen surfacings for ice, skating or curling rinks or for sledge runs; Rinks or runs with such surfacings}
- E01C 13/12
 - . for snow sports, {e.g. skiing or ski tow track (mechanical ski trails [A63C 19/10](#))}
- E01C 15/00**
Pavings specially adapted for footpaths, sidewalks or cycle tracks
- E01C 17/00**
Pavements lights, i.e translucent constructions forming part of the surface (blocks specially designed for marking roads [E01F 9/04](#))

Machine, tools, or auxiliary devices for constructing or repairing the surfacing of roads or like structures (constructing the road bed [E02D](#), [E02F](#))

E01C 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)
E01C 19/002	<ul style="list-style-type: none"> • {Apparatus for preparing and placing the materials and for consolidating or finishing the paving}
E01C 19/004	<ul style="list-style-type: none"> • {Devices for guiding or controlling the machines along a predetermined path (for graders or bulldozers E02F 3/841; for other soil-shifting machines E02F 9/2045)}
E01C 19/006	<ul style="list-style-type: none"> • • {by laser or ultrasound}
E01C 19/008	<ul style="list-style-type: none"> • • {by reference lines placed along the road, e.g. wires co-operating with feeler elements (E01C 19/006 takes precedence)}
E01C 19/02	<ul style="list-style-type: none"> • for preparing the materials {(E01C 19/002, E01C 19/45, E01C 19/46, E01C 21/00, E01C 23/065 take precedence; producing hydraulic cement concrete in general B28C 5/00 to B28C 9/00)}
E01C 19/025	<ul style="list-style-type: none"> • • {for preparing hydraulic-cement-bound mixtures of which at least one ingredient has previously been deposited on the surface, e.g. in situ mixing of concrete}
E01C 19/05	<ul style="list-style-type: none"> • • Crushing, pulverising or disintegrating apparatus ({preparing and placing involving breaking E01C 19/466 ; in general B02C); Aggregate screening, cleaning, {drying} or heating apparatus; {Dust-collecting arrangements specially adapted therefor}
E01C 19/08	<ul style="list-style-type: none"> • • Apparatus for transporting and {heating or} melting asphalt, bitumen, tar, or the like (stationarily-arranged melting boilers for tar, asphalt, or the like, in general C10C 3/12)
E01C 19/10	<ul style="list-style-type: none"> • • Apparatus or plant for premixing or precoating aggregate or fillers with non-hydraulic binders, e.g. with bitumen, with resins, {i.e. producing mixtures or coating aggregates otherwise than by penetrating or surface dressing}; Apparatus for premixing non-hydraulic mixtures prior to placing or for reconditioning salvaged non-hydraulic compositions {(E01C 19/08, E01C 19/21, E01C 21/00, E01C 23/065 take precedence)}
E01C 19/1004	<ul style="list-style-type: none"> • • • {Reconditioning or reprocessing bituminous mixtures, e.g. salvaged paving, fresh patching mixtures grown unserviceable; Recycling salvaged bituminous mixtures; Apparatus for the in-plant recycling thereof (E01C 19/1036 takes precedence)}
E01C 19/1009	<ul style="list-style-type: none"> • • • {Plant wherein type or construction of the mixer are irrelevant (E01C 19/1004 takes precedence)}
E01C 19/1013	<ul style="list-style-type: none"> • • • {Plant characterised by the mode of operation or the construction of the mixing apparatus; Mixing apparatus; (E01C 19/1004, E01C 19/1054 take precedence)}
E01C 19/1018	<ul style="list-style-type: none"> • • • • {Coating the solid ingredients by immersion in a bath of binder}
E01C 19/1022	<ul style="list-style-type: none"> • • • • {Coating the solid ingredients by passing same through a shower or cloud of binder (E01C 19/21, E01C 19/4813 take precedence)}
E01C 19/1027	<ul style="list-style-type: none"> • • • • {Mixing in a rotary receptacle}

- E01C 19/1031 {the mixture being discharged continuously ([E01C 19/1036](#) takes precedence)}
- E01C 19/1036 {for in-plant recycling or for reprocessing, e.g. adapted to receive and reprocess an addition of salvaged material, adapted to reheat and remix cooled-down batches}
- E01C 19/104 {Mixing by means of movable members in a non-rotating mixing enclosure, e.g. stirrers ([E01C 19/08](#) takes precedence)}
- E01C 19/1045 {the mixture being discharged continuously}
- E01C 19/105 {Mixing or coating by a combination of methods covered by [E01C 19/1018](#) to [E01C 19/104](#), excluding [E01C 19/1036](#)}
- E01C 19/1054 {Preparing mixtures of which at least part of the solid ingredients has previously been deposited on the surface, excluding penetrating or surface dressing, e.g. in situ mixing, mixing involving lifting of spread or windrowed aggregate (preparing and placing such bituminous mixtures [E01C 19/463](#); recycling in place or on the road [E01C 23/065](#))}
- E01C 19/1059 {Controlling the operations; Devices solely for supplying or proportioning the ingredients}
- E01C 19/1063 {Controlling the operations ([E01C 19/1068](#) takes precedence)}
- E01C 19/1068 {Supplying or proportioning the ingredients}
- E01C 19/1072 {the solid ingredients}
- E01C 19/1077 {the liquid ingredients}
- E01C 2019/1081 {Details not otherwise provided for}
- E01C 2019/1086 {Mixing containers having concentric drums}
- E01C 2019/109 {Mixing containers having a counter flow drum, i.e. the flow of material is opposite to the gas flow}
- E01C 2019/1095 {Mixing containers having a parallel flow drum, i.e. the flow of material is parallel to the gas flow}
- E01C 19/12 for distributing granular or liquid materials ({[E01C 19/002](#), [E01C 19/45](#), [E01C 19/46](#), [E01C 19/48](#), [E01C 23/03](#), [E01C 23/065](#)}, [E01C 23/07](#) take precedence; for filling joints or grooves [E01C 23/02](#), [E01C 23/09](#))}
- E01C 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 19/466](#)}, [E01C 19/52](#) take precedence; distributing [E01C 19/20](#); {laying down and rolling [E01C 19/482](#))}
- E01C 19/16 for applying or spreading liquid materials, e.g. bitumen slurries ({[E01C 19/1054](#), [E01C 19/21](#), } [E01C 19/45](#), {[E01C 19/4813](#), [E01C 21/00](#), } [E01C 23/02](#), [E01C 23/03](#), {[E01C 23/065](#), [E01C 23/096](#), [E01C 23/0973](#), [E01C 23/0993](#)}, [E01C 23/16](#) take precedence; {spreading-out or smoothing-down means as parts of spraying apparatus [E01C 19/178](#))}
- E01C 19/17 Application by spraying {or throwing}
- E01C 19/172 {Apparatus with discharge by surpressure in tank}
- E01C 19/174 {Apparatus with pump-discharge}
- E01C 19/176 {Spraying or throwing elements, e.g. nozzles; Arrangement thereof or supporting structures therefor, e.g. spray-bars}
- E01C 19/178 {Elements or attachments for spreading-out or smoothing-down the applied material, e.g. brushes}

- E01C 19/18 . . Devices for distributing road-metals mixed with binders, e.g. cement, bitumen, without consolidating or ironing effect ([E01C 19/20](#), [E01C 19/21](#), [E01C 19/46](#) , [E01C 19/47](#), [E01C 19/48](#), [E01C 21/00](#), [E01C 23/065](#), [E01C 23/07](#)) take precedence; conveying installation for concrete or the like [B65G](#))
- E01C 19/182 . . . {solely for depositing}
- E01C 19/185 . . . {for both depositing and spreading-out or striking-off the deposited mixture ([laying-down the materials and consolidating them, or finishing the surface, E01C 19/48](#))}
- E01C 19/187 . . . {solely for spreading-out or striking-off deposited mixtures, e.g. spread-out screws, strike-off boards}
- E01C 19/20 . . Apparatus for distributing, e.g. spreading, granular or pulverulent materials, e.g. sand, gravel, salt, dry binders ([E01C 19/21](#), [E01C 19/4813](#), [E01C 19/482](#), [E01C 23/098](#), [E01C 23/166](#) take precedence; } fertiliser distributors [A01C 15/00](#); {permanently-installed devices for applying gritting or thawing materials [E01H 10/005](#); mobile spreaders specially adapted for treating wintry roads [E01H 10/007](#))}
- E01C 19/2005 . . . {without driven loosening, discharging or spreading ([E01C 19/205](#) takes precedence)}
- E01C 19/201 . . . {with driven loosening, discharging or spreading parts, e.g. power-driven, drive derived from road-wheels ([E01C 19/205](#) takes precedence)}
- E01C 19/2015 {solely reciprocating, swinging to-and-fro, jolting or vibrating, e.g. oscillating stirrers, shaking spreading shoots}
- E01C 19/202 {solely rotating, e.g. discharging and spreading drums}
- E01C 19/2025 {Throwers with substantially horizontal axis, e.g. drums or brushes rotated to fling the material at the surface}
- E01C 19/203 {Centrifugal spreaders with substantially vertical axis}
- E01C 19/2035 {both rotating parts and reciprocating, oscillating, jolting or vibrating parts}
- E01C 19/204 {Throwers or centrifugal spreaders, e.g. spinner spreader with oscillating stirrer}
- E01C 19/2045 {spreading by means of an endless belt or like conveyer}
- E01C 19/205 {the material being spread by means of a gaseous current}
- E01C 2019/2055 {Details not otherwise provided for}
- E01C 2019/206 {Hand operated spreading devices}
- E01C 2019/2065 {Sensing the quantity of the material actually being distributed}
- E01C 2019/207 {Feeding the distribution means}
- E01C 2019/2075 {with longitudinal conveyer belt}
- E01C 2019/208 {with longitudinal auger}
- E01C 2019/2085 {with transverse conveyer belt}
- E01C 2019/209 {with transverse auger}
- E01C 2019/2095 {by tipping}
- E01C 19/21 . . for simultaneously but separately applying liquid material and granular or pulverulent material, e.g. bitumen and grit, with or without spreading {(with [rolling E01C 19/4813](#)); for filling grooves and gritting the filling}

- E01C 19/22
 - for consolidating or finishing laid-down unset materials ([E01C 19/002](#), [E01C 19/48](#), [E01C 21/00](#)) [E01C 23/02](#) [E01C 23/065](#) take precedence; apparatus for generating vibrations in general [B06B](#))
- E01C 19/23
 - • Rollers therefor; Such rollers usable also for compacting soil ([E01C 19/41](#), [E01C 19/43](#), [E01C 19/52](#), [E01C 23/065](#)) take 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](#))
- E01C 19/231
 - • • {with both elastically-deformable and rigid rolling elements, e.g. pneumatic-tyred compactor with selectively operative or inoperative steel-faced roll (with auxiliary elastically-deformable rolling elements for working only restricted zones [E01C 19/27](#); rigid-roll rollers with conventional pneumatic-tyred tractors or traction-units [E01C 19/25](#), [E01C 19/26](#), [E01C 19/28](#))}
- E01C 19/233
 - • • • {the rigid rolling elements being vibrated or subjected to impacts (with vibrated elastically-deformable rolling elements [E01C 19/287](#))}
- E01C 19/235
 - • • {Rolling apparatus designed to roll following a path other than essentially linear, e.g. epicycloidal}
- E01C 19/236
 - • • {Construction of the rolling elements, e.g. surface configuration, rolling surface formed by endless track}
- E01C 19/238
 - • • {Wetting, cleaning or heating rolling elements, e.g. oiling, wiping, scraping}
- E01C 19/24
 - • • hand propelled ([E01C 19/235](#), [E01C 19/27](#) to [E01C 19/29](#), [E01C 19/41](#)) take precedence)
- E01C 19/25
 - • • propelled by animals or vehicles ([E01C 19/235](#), [E01C 19/26](#) to [E01C 19/29](#) take precedence)
- E01C 19/255
 - • • • {by vehicles placed on the rolling device; provided with means for facilitating rapid road transport, e.g. retractable transport wheels}
- E01C 19/26
 - • • self-propelled or fitted to road vehicles ([E01C 19/231](#), [E01C 19/235](#), [E01C 19/27](#) to [E01C 19/29](#) take precedence)
- E01C 19/262
 - • • • {pedestrian-controlled, e.g. with safety arrangements for operator}
- E01C 19/264
 - • • • {with attachments for work other than rolling, e.g. grading, scarifying (rollers fitted to road-construction or earth-moving machinery [E01C 19/266](#))}
- E01C 19/266
 - • • • {fitted to vehicles, road-construction or earth-moving machinery, e.g. auxiliary roll readily movable to operative position ([E01C 19/268](#), [E01C 19/4806](#), [E01C 19/488](#), [E01C 19/52](#), [E01C 21/00](#), [E01C 23/065](#) take precedence); provided with means for facilitating transport; Means for transporting rollers; Arrangements or attachments for converting vehicles into rollers, e.g. rolling sleeves for wheels}
- E01C 19/268
 - • • • {designed for rolling surfaces not situated in the plane of the riding surface of the apparatus, e.g. stepped-down surfaces, sloping edge of surfacing (trench rollers [E02D 3/032](#); slope rollers [E02D 3/039](#))}
- E01C 19/27
 - • • with elastically-deformable rolling elements, e.g. pneumatic tyres ([E01C 19/231](#) takes precedence) ; vibrating or impacting [E01C 19/28](#))
- E01C 19/28
 - • • Vibrated rollers or rollers subjected to impacts, e.g. hammering blows ([E01C 19/235](#), [E01C 19/29](#), [E01C 19/41](#)) take precedence; {combined with non-vibrated elastically-deformable rolling elements [E01C 19/233](#))}

- E01C 19/281 {propelled by hand or by vehicles, e.g. towed ([E01C 19/285](#) to [E01C 19/288](#) take precedence)}
- E01C 19/282 {self-propelled, e.g. with an own traction-unit ([E01C 19/285](#) to [E01C 19/288](#) take precedence)}
- E01C 19/283 {pedestrian-controlled, e.g. with safety arrangements for operator}
- E01C 19/285 {with attachments for work other than rolling, e.g. dozer blades, shoes for conversion into plate vibrator; fitted to vehicles, road-construction or earth-moving machinery ([E01C 19/29](#), [E01C 19/4806](#), [E01C 19/488](#), [E01C 19/52](#), [E01C 21/00](#), [E01C 23/065](#) take precedence); vibrated or the like auxiliary rolls, e.g. for rolling road edges; provided with means for facilitating transport}
- E01C 19/286 {Vibration or impact-imparting means; Arrangement, mounting or adjustment thereof; Construction or mounting of the rolling elements, transmission or drive thereto, e.g. to vibrator mounted inside the roll ([E01C 19/287](#) and [E01C 19/288](#) take precedence)}
- E01C 19/287 {with vibrated elastically-deformable or elastomer-faced rolling elements or with such elements subjected to impacts, e.g. multi-roll vibratory apparatus with an endless elastomer belt passed around the rolls (rollers with both non-vibrated, elastically-deformable and vibrated rigid rolling elements [E01C 19/233](#))}
- E01C 19/288 {adapted for monitoring characteristics of the material being compacted, e.g. indicating resonant frequency, measuring degree of compaction, by measuring values, detectable on the roller; using detected values to control operation of the roller, e.g. automatic adjustment of vibration responsive to such measurements}
- E01C 19/29 . . . Rolling apparatus adapted to apply a rolling pressure less than its weight, e.g. roller finishers travelling on formrail {combined with spread-out, strike-off or smoothing means; Rolling elements with controlled penetration or a controlled path of movement in a vertical plane, e.g. controlled by the formrails, by guides ensuring a desired configuration of the rolled surface}
- E01C 19/30 . . Tamping or vibrating apparatus other than rollers {;Devices for ramming individual paving elements} ([E01C 19/41](#), [E01C 19/43](#), [E01C 19/4833](#), [E01C 19/488](#), [E01C 19/4886](#), [E01C 19/52](#), [E01C 21/00](#), } [E01C 23/02](#), [E01C 23/04](#) take precedence; vibrated depositing devices [E01C 19/12](#); tamping or vibrating rollers [E01C 19/28](#); portable percussion tools [B25D](#); tamping or vibrating soil [E02D 3/046](#))
- E01C 19/32 . . . Hand-held hand-actuated rammers or tampers
- E01C 19/34 . . . Power-driven rammers or tampers, {e.g. air-hammer impacted shoes for ramming stone-sett paving; Hand-actuated ramming or tamping machines, e.g. tampers with manually hoisted dropping weight}
- E01C 19/35 Hand-held or hand-guided tools ([E01C 19/36](#) to [E01C 19/40](#) take precedence)
- E01C 19/36 with direct-acting explosion chambers
- E01C 19/38 with means specifically for generating vibrations, {e.g. vibrating plate compactors, immersion vibrators ([E01C 19/40](#), [E01C 19/41](#) take precedence)}
- E01C 19/40 adapted to impart a smooth finish to the paving, e.g. tamping or vibrating finishers

NOTE

E01C 19/40

(continued)

When classifying in group [E01C 19/402](#), classification is also
made in groups [E01C 19/405](#) or [E01C 19/407](#) if of interest

- E01C 19/402 {the tools being hand-guided}
- E01C 19/405 {with spreading-out, levelling or smoothing means other than the
tamping or vibrating means for compacting or smoothing, e.g. with
screws for spreading-out the previously dumped material, with non-
vibratory lengthwise reciprocated smoothing beam ([E01C 19/407](#)
takes precedence)}
- E01C 19/407 {with elements or parts partly or fully immersed in or penetrating
into the material to act thereon, e.g. immersed vibrators or vibrating
parts, kneading tampers, spaders}
- E01C 19/41 . . Apparatus having both rolling tools and ramming, tamping, or vibrating tools
- E01C 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](#); {hand-
actuated smoothing tools [E01C 19/44](#)})
- E01C 19/43 . . Machines or arrangements for roughening or patterning freshly-laid paving
courses, e.g. indenting rollers
- E01C 19/44 . . Hand-actuated tools other than rollers, tampers, or vibrators, specially
adapted for imparting a required finish to freshly-laid paving courses
([E01C 19/43](#), {[E01C 23/02](#)} take precedence)
- E01C 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](#))
- E01C 19/46 . for preparing and placing the materials {e.g. slurry seals} ({[E01C 19/002](#), }
[E01C 19/45](#), {[E01C 21/00](#), [E01C 23/065](#)} take precedence)
- E01C 19/463 . . {Bituminous mixtures of which at least part of the solid ingredients has
previously been deposited on the surface, e.g. with lifting of spread or
windrowed aggregate}
- E01C 19/466 . . {Solid materials, e.g. crushing same}
- E01C 19/47 . . Hydraulic cement concrete mixers combined with distributing means
specially adapted for road building ({[E01C 19/025](#) takes precedence } ;
concrete mixers per se [B28C](#))
- E01C 19/475 . . . {Distributing means therefor, e.g. boom-and-bucket arrangements}
- E01C 19/48 . for laying-down the materials and consolidating them, or finishing the surface,
{e.g. slip forms therefor, forming kerbs or gutters in a continuous operation
in situ ([E01C 19/002](#), [E01C 23/065](#) take precedence; devices for guiding or
controlling the machines along a predetermined path [E01C 19/004](#))}
- E01C 19/4806 . . {with solely rollers for consolidating or finishing ([E01C 19/4886](#) takes
precedence; combined with other consolidating or finishing means
[E01C 19/488](#))}
- E01C 19/4813 . . . {the materials being simultaneously but separately applied binders and
granular or pulverulent material (such application per se [E01C 19/21](#))}
- E01C 19/482 . . . {the materials being uncoated stone or similar granular materials,
e.g. sand (laying-down uncoated stone or similar materials per se
[E01C 19/15](#); distributing granular or pulverung materials per se
[E01C 19/20](#))}
- E01C 19/4826 . . . {the materials being aggregate mixed with binders (distributing per se
[E01C 19/18](#))}

- E01C 19/4833 . . {with tamping or vibrating means for consolidating or finishing, e.g. immersed vibrators, with or without non-vibratory or non-percussive pressing or smoothing means ([E01C 19/4806](#), [E01C 19/4886](#) take precedence; combined with rollers [E01C 19/488](#))}
- E01C 19/484 . . . {Rail- or like-borne apparatus, e.g. sliding on side forms, rolling on form rails, kerbs or like trackways}
- E01C 19/4846 {with non-vibratory or non-percussive pressing or smoothing means, e.g. trailing smoothing pans, plates pressing the materials processed by immersed vibrators; with supplemental elements penetrating the paving to work the material thereof, e.g. rodding means}
- E01C 19/4853 . . . {Apparatus designed for railless operation, e.g. crawler-mounted, provided with portable trackway arrangements}
- E01C 19/486 {with non-vibratory or non-percussive pressing or smoothing means; with supplemental elements penetrating the paving to work the material thereof}
- E01C 19/4866 . . {with solely non-vibratory or non-percussive pressing or smoothing means for consolidating or finishing ([E01C 19/4886](#) takes precedence; combined with rollers [E01C 19/488](#))}
- E01C 19/4873 . . . {Apparatus designed for railless operation}
- E01C 19/488 . . {with rollers for consolidating or finishing combined with tamping, vibrating, pressing or smoothing consolidation or finishing means ([E01C 19/4886](#) takes precedence)}
- E01C 19/4886 . . {for forming in a continuous operation kerbs, gutters, berms, safety kerbs, median barriers or like structures in situ, e.g. by slip-forming, by extrusion (removable forms for kerbs, gutters or similar structures [E01C 19/506](#); making conduits in situ [E02D 29/10](#))}
- E01C 19/4893 . . . {Apparatus designed for railless operation}
- E01C 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](#), {[E01C 9/00](#) to [E01C 17/00](#)} ; slip forms [E01C 19/48](#)); Devices or arrangements for forming individual paving elements, e.g. kerbs, in situ
- E01C 19/502 . . {Removable forms or shutterings, e.g. side forms; Removable supporting or anchoring means therefor, e.g. stakes (for forming individual elements [E01C 19/508](#); for grooves or like channels [E01C 23/021](#))}
- E01C 19/504 . . . {adapted to, or provided with, means to maintain reinforcing or load transfer elements in a required position (removable supports for positioning reinforcing or load transfer elements in general [E01C 23/045](#))}
- E01C 19/506 . . . {for kerbs, gutters or similar structures, e.g. raised portions, median barriers}
- E01C 19/508 . . {Devices or arrangements for forming individual paving elements in situ, e.g. by sectioning a freshly-laid slab (permanent forms therefor [E01C 9/001](#); imprinting freshly-laid paving to simulate stones [E01C 19/43](#); cutting sett paving [E01C 23/0906](#))}
- E01C 19/52 . Apparatus for laying individual preformed surfacing elements, e.g. kerbstones
- E01C 19/522 . . {Apparatus for laying the elements by rolling or unfolding, e.g. for temporary pavings}
- E01C 19/524 . . {using suction devices}
- E01C 19/526 . . {hand operated ([E01C 19/524](#) takes precedence)}

E01C 19/528 . . . {with wheels}

E01C 21/00 Apparatus or processes for surface {soil} stabilisation for road building or like purposes, e.g. mixing local aggregate with binder ({recycling in place or on the road involving soil stabilisation [E01C 23/065](#)}; stabilising soil under existing surfacing [E01C 23/10](#); soil-conditioning or soil-stabilising materials [C09K 17/00](#); soil consolidation in general [E02D 3/12](#))

E01C 21/02 . Fusing, calcining, or burning soil in situ {(improving soil by thermal means in general [E02D 3/11](#); devices for heating foundation or paving [E01C 23/14](#))}

E01C 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 {for- in plant recycling of salvaged bituminous mixtures} [E01C 19/10](#))

E01C 23/01 . Devices or auxiliary means for setting-out or checking the configuration of new surfacing, e.g. templates, screed {or reference line} 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](#))

E01C 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 {joint} insert supports [E01C 11/02](#))

E01C 23/021 . . {Removable, e.g. reusable, forms for grooves or like channels ([E01C 23/028](#) takes precedence; groove-forming members of groove-making apparatus [E01C 23/025](#), [E01C 23/026](#)); Installing same prior to placing the paving (into laid paving [E01C 23/026](#))}

E01C 23/023 . . {Removable joint-body supports ([E01C 23/045](#) take precedence); Installing joint or like bodies, e.g. waterstops, prior to placing the paving (into laid paving [E01C 23/026](#) takes precedence)}

E01C 23/025 . . {Making or working grooves or like channels in laid paving, e.g. smoothing groove edges ([E01C 23/026](#), [E01C 23/028](#) take precedence)}

E01C 23/026 . . {Introducing preformed inserts into or filling grooves or like channels in laid paving, with or without concurrent making or working of groove or channel, e.g. filling groove with semi-plastic material ([E01C 23/028](#) takes precedence)}

E01C 23/028 . . {Positioning or producing markings, e.g. by forcing marking materials into the surface, by scoring}

E01C 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](#))

E01C 23/04 . Devices for laying {inserting or positioning} reinforcing elements or dowel bars {with or without joint bodies (installing or inserting joint bodies per se [E01C 23/023](#), [E01C 23/026](#))}; Removable support for reinforcing {or load transfer} elements (non-removable supports therefor {[E01C 11/02](#) [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 reinforcements

- E01C 23/045 . . {Removable, e.g. reusable supports for positioning reinforcing or load transfer elements, adapted or not to also hold joint bodies}
- E01C 23/05 . Devices for installing or removing forms
- E01C 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 {or reconditioning} the surface of damaged paving;
{Recycling in place or on the road}
- E01C 23/065 . . {Recycling in place or on the road, i.e. hot or cold reprocessing of paving in situ or on the traffic surface, with or without adding virgin material or lifting of salvaged material; Repairs or resurfacing involving at least partial reprocessing of the existing paving (in situ mixing of hydraulic cement concrete E01C 19/025; apparatus for in-plant recycling E01C 19/1004, E01C 19/1036)}
- E01C 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, {G01B})
- E01C 23/08 . . for roughening or patterning; for removing {the surface down to a predetermined depth} high spots or material bonded to the surface, e.g. markings; {for maintaining earth roads, clay courts or like surfaces by means of surface working tools, e.g. scarifiers, levelling blades} (removing matter not bonded to the surface E01H 1/00; roughening or detaching ice E01H 5/12)
- E01C 23/081 . . . {by thermal or cryogenic treatment, excluding heating to facilitate mechanical working}
- E01C 23/082 . . . using non-powered tools
- E01C 23/0825 {rotary, e.g. gang discs}
- E01C 23/085 . . . using power-driven tools, e.g. vibratory tools
- E01C 23/0855 {moved rectilinearly, e.g. scabblers}
- E01C 23/088 Rotary tools, e.g. milling drums {(for forming recesses to receive marking materials E01C 23/0946)}
- E01C 23/0885 {with vertical or steeply inclined rotary axis}
- E01C 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 fiddures; for trimming paving edges
- E01C 23/0906 . . . {for forming, opening-out, cleaning, drying or heating cuts, grooves, recesses or, excluding forming, cracks, e.g. cleaning by sand-blasting or air-jet (E01C 23/096, E01C 23/0993 take precedence, save for E01C 23/0946); for trimming paving edges}
- E01C 23/0913 {with non-powered tools, e.g. trailed router blade}
- E01C 23/092 {rotary, e.g. edge trimmer disc}
- E01C 23/0926 {with power-driven tools, e.g. vibrated, percussive cutters}
- E01C 23/0933 {rotary, e.g. circular-saw joint cutters}
- E01C 23/094 {about vertical or inclined axes, e.g. for core sampling (E01C 23/0946 takes precedence)}
- E01C 23/0946 {specially for forming recesses to receive marking materials or markers, e.g. cutters for milling traffic line channels, core drills for button-setting (other tools E01C 23/0993)}

- E01C 23/0953 {by thermal effect, e.g. cutting by melting, cleaning drying or heating with hot jets}
- E01C 23/096 . . . {for forming, opening-out, cleaning, drying or heating and filling ([E01C 23/0993](#) takes precedence)}
- E01C 23/0966 . . . {for filling or priming, with or without working the surface of the filling or applying particulate material thereto, e.g. for filling the joints of stone-sett paving ([E01C 23/096](#), [E01C 23/0993](#) take precedence)}
- E01C 23/0973 {with liquid or semi-liquid materials, e.g. crack sealants}
- E01C 23/098 {and working the surface of the filling or applying particulate material thereto, e.g. smoothing, gritting}
- E01C 23/0986 {with preformed elements, e.g. joint strips}
- E01C 23/0993 . . . {for forming or installing surface markings or signals in the paving, e.g. grooving for striping or for producing rumble strips, forming marker-receiving recesses ([E01C 23/0946](#) takes precedence)}
- E01C 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](#))
- E01C 23/12 . . for taking-up, tearing-up, or {full-depth} breaking-up paving, {e.g. sett extractor} (adapted to both placing and removing {preformed} paving {elements} [E01C 19/52](#))
- E01C 23/121 . . . {with non-powered tools, e.g. rippers (rollers with ripping attachments [E01C 19/264](#), [E01C 19/27](#), [E01C 19/285](#); roughening or patterning using non powered tools [E01C 23/082](#))}
- E01C 23/122 . . . {with power-driven tools, e.g. oscillated hammer apparatus (hand-held breakers: percussion tools [B25D](#))}
- E01C 23/124 {moved rectilinearly, e.g. road-breaker apparatus with reciprocating tools, with drop-hammers}
- E01C 23/125 {with direct-acting explosion chambers, i.e. Diesel breakers}
- E01C 23/127 {rotary, e.g. rotary hammers}
- E01C 23/128 . . . {with hydrojets (hydraulic cleaning [E01H 1/101](#))}
- E01C 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 {soil} 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](#))
- E01C 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 {(indicating fresh markings [E01F 9/0128](#))}
- E01C 23/163 . . {for marking-out the location of the markings; Guiding or steering devices for marking apparatus, e.g. sights}
- E01C 23/166 . . {Means for dispensing particulate material on to freshly applied markings or into the marking material after discharge thereof, e.g. reflective beads, grip-improving particles}
- E01C 23/18 . . for applying prefabricated markings

E01C 23/185	. . . {Tape- or sheet-shape markers or carriers}
E01C 23/20	. . for forming markings in situ
E01C 23/203	. . . {the marking material being applied to the surface by contact with an application tool, e.g. paint roller}
E01C 23/206	. . . {by applying fusible particulate material to the surface, e.g. by means of a gaseous stream}
E01C 23/22	. . . by spraying {(E01C 23/206 takes precedence)}
E01C 23/222 {specially adapted for automatic spraying of interrupted, individual or variable markings}
E01C 23/225 {comprising means for mechanically working the applied material, e.g. smoothing brushes}
E01C 23/227 {the marking material being supplied in aerosol containers}
E01C 23/24	. . . by pouring
E01C 23/243 {specially adapted for automatic pouring of interrupted, individual or variable markings}
E01C 23/246 {comprising means for mechanically working the applied material, e.g. smoothing brushes}

E01C 2201/00

Paving elements

E01C 2201/02	. having fixed spacing features
E01C 2201/04	. consisting of natural stones and a binder
E01C 2201/06	. Sets of paving elements
E01C 2201/065	. . specially for coverings around manhole-shafts or the like
E01C 2201/08	. having direction indicating means
E01C 2201/10	. having build-in shock absorbing devices
E01C 2201/12	. vertically interlocking
E01C 2201/14	. Puzzle-like connections
E01C 2201/16	. Elements joined together
E01C 2201/162	. . with breaking lines
E01C 2201/165	. . with spots of glue
E01C 2201/167	. . by reinforcement or mesh
E01C 2201/18	. Elements representing text
E01C 2201/20	. Drainage details
E01C 2201/202	. . Horizontal drainage channels
E01C 2201/205	. . . channels on the top
E01C 2201/207	. . . channels on the bottom

E01C 2301/00

Machine characteristics, parts or accessories not otherwise provided for

E01C 2301/02	. Feeding devices for pavers
E01C 2301/04	. . Independent shuttles
E01C 2301/06	. . Windrow pickup
E01C 2301/08	. . Pushing devices for lorries

- E01C 2301/10
 - Heated screeds
- E01C 2301/14
 - Extendable screeds
- E01C 2301/16
 - • Laterally slidable screeds
- E01C 2301/18
 - • • the whole machine being laterally slidable
- E01C 2301/20
 - Screed or paver accessories for paving joint or edge treatment
- E01C 2301/30
 - Cabin details
- E01C 2301/40
 - Working platform or walkway
- E01C 2301/50
 - Methods or devices for preventing dust by spraying or sucking