

ECLA EUROPEAN 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)**
- E01C1/00 Design or layout of roads, e.g. for noise abatement, for gas absorption (design or layout of sports grounds [A63C19/00](#); design or layout of airfields [B64E](#), [N: of helicopter landing stages [E01F3/00](#)])**
- E01C1/00B** . [N: Design or lay-out of roads, e.g. street systems, cross-sections ([E01C1/00C](#), [E01C1/00D](#) take precedence; of footpaths, sidewalks, berms, hard shoulders or cycle tracks [E01C15/00](#)); Design for noise abatement, e.g. sunken road (reducing transmission of structure-born noise [E01C3/06](#); 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 [E01F8/00](#))]
- E01C1/00C** . [N: 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, [B08B15/00C](#))]
- E01C1/00D** . [N: 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 [E01C9/00E](#); road surface configuring or surface arrangements for enforcing reduced speed or required caution, e.g. speed-control humps [E01F9/047](#))] [C9703]
- E01C1/02** . Crossings, junctions or interconnections between roads on the same level [N: (construction of traffic islands [E01F1/00](#))]
- E01C1/04** . Road crossings on different levels; Interconnections between roads on different levels
- Guide heading:** **Structure of roads, playgrounds, sports grounds, airfields**
- E01C3/00 Foundations for pavings (specially adapted for playgrounds or sports grounds [E01C13/02](#); foundations in general [E02D](#))**
- E01C3/00B** . [N: characterised by material or composition used, e.g. waste or recycled material ([E01C3/00C](#), [E01C3/04](#) and [E01C3/06](#) take precedence)]
- E01C3/00C** . [N: made of prefabricated single units ([E01C3/06](#) takes precedence)]
- E01C3/02** . Concrete base for bituminous paving
- E01C3/04** . Foundations produced by soil stabilisation [N: (soil stabilisation for road building in general [E01C7/36](#))]
- E01C3/06** . Methods or arrangements for protecting foundations from destructive influence of moisture, frost or vibration [N: (heating devices [E01C11/26](#); draining the subbase of roads [E01F5/00](#))]

- E01C5/00 Pavings made of prefabricated single units** (specially adapted for playgrounds or sports grounds [E01C13/04](#), for footpaths, sidewalks or cycle tracks [E01C15/00](#); making artificial stones [C04B](#); building stones [E04C](#); flooring [E04F](#))
- E01C5/00B . [N: on prefabricated supporting structures or prefabricated foundation elements except coverings made of layers of similar elements]
 - E01C5/00C . [N: characterised by material or composition used for beds or joints; characterised by the way of laying]
 - E01C5/00D . [N: Individual couplings or spacer elements for joining the prefabricated units ([E01C5/10](#) takes precedence)]
 - E01C5/00D2 . . [N: Individual spacer elements]
 - E01C5/00E . [N: made of vegetable stems, e.g. straw, thatch (of wood [E01C5/14](#)); made of textiles (of bituminous textile webs [E01C5/12](#); of linoleum [E01C5/20](#))]
 - E01C5/02 . made of natural stones, e.g. sett stones [N: (as inserts in binders or bound thereby into greater unity [E01C5/22](#))]
 - E01C5/04 . made of bricks [N: (of asphalt bricks [E01C5/12](#))]
 - E01C5/06 . made of units with cement or like binders
 - E01C5/06B . . [N: characterised by their structure or component materials, e.g. concrete layers of different structure, special additives]
 - E01C5/08 . . Reinforced units [N: with steel frames (with metal upper or under layers [E01C5/22](#))]
 - E01C5/08B . . . [N: on prefabricated supporting structures or prefabricated foundation elements except coverings made of layers of similar elements]
 - E01C5/10 . . . Prestressed reinforced units; [N: Prestressed coverings from reinforced or non-reinforced units (prestressed concrete coverings [E01C7/16](#))]
 - E01C5/10B [N: on prefabricated supporting structures or prefabricated foundation elements, except coverings made of layers of similar elements]
 - E01C5/12 . made of units with bituminous binders [N: or from bituminous material, e.g. asphalt mats]
 - E01C5/14 . made of wooden units
 - E01C5/16 . made of metallic units ([N: with a filling or ground plate of other material [E01C5/22](#); for temporary pavings [E01C9/08B](#)]; steel gratings [E01C9/10](#))
 - E01C5/18 . made of rubber units [N: (of units made from other material and having a rubber upper layer [E01C5/22C](#))]
 - E01C5/20 . made of units of plastics, [N: e.g. concrete with plastics, linoleum] ([E01C5/18](#) takes precedence; [N: of textiles made of synthetic fibres [E01C5/00E](#)])
 - E01C5/22 . made of units composed of a mixture of materials covered by two or more of groups [N: [E01C5/00E](#)], [E01C5/02](#) to [E01C5/20](#) [N: except embedded reinforcing materials]
 - E01C5/22B . . [N: on prefabricated supporting or prefabricated foundation units, except coverings made of layers of similar elements]

- E01C5/22C . . [N: having an upper layer of rubber, with or without inserts of other materials; with rubber inserts]
- E01C7/00** **Coherent pavings made in situ** (specially adapted for playgrounds or sports grounds [E01C13/06](#); for footpaths, sidewalks or cycle tracks [E01C15/00](#))
- E01C7/02 . made of road-metal without binders
- E01C7/04 . . of broken stones, gravel, or like materials
- E01C7/06 . . by melting, burning, or vitrifying road-metal in situ
- E01C7/08 . made of road-metal and binders [N: ([E01C7/36](#) takes precedence)]
- E01C7/08B . . [N: Aggregate or filler materials therefor; Coloured reflecting or luminescent additives therefor (thin surface layers or surface dressings [E01C7/35](#))]
- E01C7/10 . . of road-metal and cement or like binders (cement or like binders, composition of mortars [C04B](#))
- E01C7/12 . . . Mortar-bound paving
- E01C7/14 . . . Concrete paving [N: (from concrete prepared in situ [E01C7/12](#); small individual units from concrete cast in situ [E01C9/00B](#); arrangement or construction of joints [E01C11/04](#); reinforcements [E01C11/18](#))]
- E01C7/14B [N: Mixtures or their components, e.g. aggregate ([E01C7/14D](#), [E01C7/35D](#) take precedence; different layers of different composition [E01C7/14](#))]
- E01C7/14C [N: Sliding coverings, underlayers or intermediate layers (isolating underlayers [E01C3/06](#); sliding layers between coverings of different materials [E01C7/34](#)); 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 [E01C7/14D](#))]
- E01C7/14D [N: Repairing concrete pavings, e.g. joining cracked road sections by dowels, applying a new concrete covering (applying thin surface layers with other binder [E01C7/35](#); repairing pavings in general [E01C11/00B](#); roughening by means of tools [E01C11/24](#))]
- E01C7/16 Prestressed concrete paving [N: (prestressed coverings from prefabricated concrete units [E01C5/10](#); prestressed joint constructions [E01C11/04](#); prestressed reinforcements [E01C11/20](#))]
- E01C7/18 . . of road-metal and bituminous binders [N: (for surface treatments except for penetration coverings, or for thin surface layers [E01C7/35C](#); bituminous mixtures [C08L95/00](#))]
- E01C7/18B . . . [N: Aggregate or filler materials, except those according to [E01C7/26](#) ([E01C7/18D](#), [E01C7/35C](#) take precedence; different aggregates or fillers [E01C7/18](#))]
- E01C7/18C . . . [N: Isolating, separating or connecting intermediate layers, e.g. adhesive layers; Transmission of shearing force in horizontal intermediate planes, e.g. by protrusions ([E01C7/18D](#) takes precedence; adhesive layers for materials [E01C7/35](#))]
- E01C7/18D . . . [N: 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 [E01C7/35](#); repairing pavings in general [E01C11/00B](#))]
- E01C7/20 . . . Binder incorporated in cold state, e.g. natural asphalt
- E01C7/22 . . . Binder incorporated in hot state, e.g. heated bitumen
- E01C7/24 . . . Binder incorporated as an emulsion or solution (making dispersions or emulsions for road building [C04B](#))

- E01C7/26 . . . mixed with other materials, e.g. cement, rubber, leather, fibre [N: (fibrous material reinforcements for bituminous paving [E01C11/16B](#))]
 - E01C7/26B [N: with fibrous material, e.g. asbestos; with animal or vegetal admixtures, e.g. leather, cork ([E01C7/26C](#) takes precedence)]
 - E01C7/26C [N: with rubber or synthetic resin, e.g. with rubber aggregate, with synthetic resin binder (for thin overlays or surface dressings [E01C7/35](#))]
 - E01C7/26D [N: with sulfur]
 - E01C7/30 . . of road-metal and other binders, e.g. synthetic material, [N: i.e resin]
 - E01C7/32 . . of courses of different kind made in situ
- [N: **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 [E01C7/35](#)]
- E01C7/32B . . . [N: Joining different layers, e.g. by adhesive layers; Intermediate layers, e.g. for the escape of water vapour, for spreading stresses (sliding layers [E01C7/34](#))]
 - E01C7/34 . . . made of several courses which are not bound to each other; [N: Separating means therefor, e.g. sliding layers (in or under concrete coverings [E01C7/14C](#))]
 - E01C7/35 . . Toppings or surface dressings; Methods of mixing, impregnating, or spreading them [N: (devices therefor [E01C19/00](#); mortar-macadam pavings [E01C7/12](#); bituminous penetration coverings [E01C7/18](#))]
 - E01C7/35B . . . [N: with exclusively hydraulical binders; Aggregate, fillers or other additives for application on or in the surface of toppings with exclusively hydraulic binders]
 - E01C7/35C . . . [N: 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]
 - E01C7/35D . . . [N: with exclusively rubber as binder; Aggregate, fillers or other additives for application on or in the surface of toppings having exclusively rubber as binder]
 - E01C7/35E . . . [N: 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]
 - E01C7/35F . . . [N: with a combination of two or more binders according to groups [E01C7/35B](#) to [E01C7/35E](#)]
 - E01C7/36 . . by subjecting soil to stabilisation [N: ([E01C7/06](#) takes precedence; foundations [E01C3/04](#); soil conditioning or soil stabilising materials [C09K17/00](#); soil stabilisation devices for road construction [E01C21/00](#))]
- E01C9/00** **Special pavings** (specially adapted for playgrounds or sports grounds [E01C13/00](#), for footpaths, sidewalks or cycle tracks [E01C15/00](#)); **Pavings for special parts of roads or airfields** (pavement lights [E01C17/00](#); manhole or like covers or frames [E02D29/14](#))
- E01C9/00B . . [N: Paving elements formed in situ; Permanent shutterings therefor (removable shutterings [E01C19/50B](#); moulding machines therefor [E01C19/50C](#)); 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 [E01C11/16](#), [E01C11/18B](#))]
 - E01C9/00C . . [N: Coverings, the surface of which consists partly of prefabricated units and partly of sections made in situ]
 - E01C9/00D . . [N: Pavings specially adapted for allowing vegetation (individual spacer elements [E01C5/00D2](#))]

- E01C9/00D2 . . [N: Coverings around trees forming part of the road (protecting plants in general [A01G13/00](#))]
- E01C9/00E . [N: 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 [E01F9/047](#)); Escape roads, e.g. for steep descents, for sharp bends]
- E01C9/00F . [N: Paving take-off areas for vertically starting aircraft (landing platforms for helicopters [E01F3/00](#))]
- E01C9/02 . Wheel tracks (rail tracks for guiding vehicles [E01B25/28](#))
- E01C9/04 . Pavings for railroad level-crossings
- E01C9/06 . Pavings adjacent tramways rails; [N: Pavings comprising railway tracks]
- E01C9/08 . Temporary pavings ([N: [E01C9/00F](#) takes precedence]; steel gratings [E01C9/10](#))
- E01C9/08B . . [N: made of metal, e.g. plates, network]
- E01C9/08C . . [N: made of concrete, wood, bitumen, rubber or synthetic material or a combination thereof]
- E01C9/10 . Steel gratings [N: ; Gratings made of material other than steel] ([N: [E01C9/00B](#) to [E01C9/02](#), [E01C9/06](#) take precedence; metal gratings for bridge floorings [E01D19/12B](#);] gully gratings [E03F5/06](#)) [C9703]
- E01C11/00** **Details of pavings** [N: ([E01C1/00C](#), [E01C5/00C](#), [E01C5/00D](#), [E01C7/14C](#), [E01C7/18C](#), [E01C7/32B](#) take precedence)]
- E01C11/00B . [N: Methods or materials for repairing pavings ([E01C7/35](#) takes precedence; for concrete coverings [E01C7/14D](#); for bituminous coverings [E01C7/18D](#); devices for repair works [E01C23/06](#); repairing bridge floorings [E01D22/00](#))] [C9703]
- E01C11/02 . Arrangement or construction of joints [N: (for pavings consisting of prefabricated units [E01C5/00](#)); Methods of making joints [N: (machines therefor [E01C23/02](#), [E01C23/09](#); removable joint shutterings [E01C23/02B](#)); Packing for joints (sealing joints not restricted to road or airfield paving [E04B1/68](#))
- E01C11/04 . . for cement concrete paving [N: ([E01C9/00B](#) takes precedence)]
- E01C11/04B . . . [N: specially adapted for prestressed paving]
- E01C11/06 . . . Methods of making joints
- E01C11/08 . . . Packing of metal [N: ([E01C11/04B](#) takes precedence)]
- E01C11/10 . . . Packing of plastic or elastic materials, [N: e.g. wood, resin ([E01C11/04B](#) takes precedence)]
- E01C11/10B [N: Joints with packings prepared only in situ; Materials therefor]
- E01C11/10C [N: Joints with only prefabricated packing; Packings therefor]
- E01C11/12 . . . Packing of metal and plastic or elastic materials [N: ([E01C11/04B](#) takes precedence)]
- E01C11/12B [N: Joints with only metal and in situ prepared packing or filling]
- E01C11/12C [N: Joints with only metal and prefabricated packing or filling]
- E01C11/14 . . . Dowel assembly; [N: Design or construction of reinforcements in the area of

joints (coupling devices for prefabricated units [E01C5/00D](#); combined with characteristic packings [E01C11/08](#) to [E01C11/12](#); removable holders [E01C23/04B](#)]

- E01C11/16 . Reinforcements ([N: as anchoring elements between layers [E01C7/14C](#), [E01C7/18C](#), [E01C7/32B](#)]; for building in general [E04C](#))
- E01C11/16B . . [N: particularly for bituminous or rubber- or plastic-bound pavings (bituminated textile webs [E01C5/12](#))]
- E01C11/18 . . for cement concrete pavings [N: (prefabricated reinforced units [E01C5/08](#))]
- E01C11/18B . . . [N: the reinforcements extending up to the surface, e.g. anti-slip gratings (for dividing concrete in a great number of individual units [E01C9/00B](#))]
- E01C11/20 . . . for prestressed concrete pavings [N: (from prefabricated concrete units, similar prestressed units [E01C5/10](#))]
- E01C11/22 . Gutters; [N: Surface drainage of streets, roads or like traffic areas (for sports grounds [E01C13/00](#))]; Kerbs [N: or like edging members (for sports grounds [E01C13/00](#))]
- E01C11/22B . . [N: Kerbs or like edging members, e.g. flush kerbs, shoulder retaining means (specially adapted for guiding or warning traffic or for display purposes [E01F9/053](#)); Joint members, connecting or load-transfer means specially for kerbs] [C9703]
- E01C11/22B2 . . . [N: Raised kerbs, e.g. for sidewalks ([E01C11/22B4](#), [E01F9/053B](#), [E01F9/053D](#) take precedence; preformed sidewalk paving with integral kerb [E01C15/00](#); specially for traffic islands [E01F1/00](#)); Integrated or portable means for facilitating ascent or descent] [C9703]
- E01C11/22B4 . . . [N: 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 [E01C11/22C3](#); gullies adapted to be used with kerbs, gully gratings [E03F5/04](#), [E03F5/06](#)); Kerbs adapted to house cables or pipes, or to form conduits]
- E01C11/22C . . [N: Surface drainage of streets (draining the subbase of roads, by trenches [E01F5/00](#), by sewers [E03E](#); draining arrangements for bridges [E01D19/08C](#))]
- E01C11/22C2 . . . [N: 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 ([E01C9/00D](#), [E01C9/00F](#), [E01C9/08](#), [E01C9/10](#), [E01C11/22C3B](#), [E01C13/00](#) take precedence)] [C0201]
- E01C11/22C2B [N: Coherent pavings] [N0201]
- E01C11/22C3 [N: Gutters; Channels ([E01C11/22B4](#) takes precedence; permanently installed flushing means [E01H3/04](#)); Roof drainage discharge ducts set in sidewalks]
- E01C11/22C3B [N: Gutters for porous pavings] [N0201]
- E01C11/22C3D [N: Shallow gutters, i.e. gutters forming a minor pothole] [N0302]
- E01C11/24 . Methods or arrangements for preventing slipperiness or protecting against influences of the weather [N: (measures taken in connection with the foundation [E01C3/06](#); paving elements with anti-slip inlays [E01C5/22](#); aggregates resisting to grinding [E01C7/08B](#), [E01C7/14B](#), [E01C7/18B](#); specially for surface layers [E01C7/35](#); reinforcements extending up to the surface [E01C11/16](#), [E01C11/18](#), [E01C11/18B](#); drainage [E01C11/22](#); windscreens [E01F7/02](#); snow fences [E01F7/02](#); combating fog [E01H13/00](#))]
- E01C11/24B . . [N: for preventing ice formation or for loosening ice, e.g. special additives to the paving material, resilient coatings ([E01C11/26](#) takes precedence; built-in sanding or sprinkling devices [E01H10/00](#))]
- E01C11/26 . . Permanently installed heating or blowing devices [N: (specially for combating fog [E01H](#); built-in melting devices for dislodged snow [E01H5/10B](#)); Mounting thereof]

- E01C11/26B . . . [N: Embedded electrical heating elements (in floors [F24D13/00](#)); Mounting thereof]
- E01C13/00 Pavings or foundations specially adapted for playgrounds or sports grounds; [N: Drainage, irrigation or heating of sports grounds] (general layout [A63C19/00](#))**
- E01C13/00G . [N: Construction of, or surfacings for, rinks or tracks for roller skating, skate-boarding or the like (layout of roller-skating rinks [A63C19/10](#))]
- E01C13/02 . Foundations, e.g. with drainage or heating arrangements [N: ([E01C13/00G](#), [E01C13/08B](#), [E01C13/10](#) take precedence; drainage of soil [E02B11/00](#))]
- E01C13/04 . Pavings made of prefabricated single units ([N: [E01C13/00G](#), [E01C13/06](#)], [E01C13/08](#), [E01C13/10](#) take precedence)
- E01C13/04B . . [N: the prefabricated single units consisting of or including bitumen, rubber or plastics]
- E01C13/06 . Pavings made in situ, [N: e.g. for sand grounds, clay courts [E01C13/00G](#)], ([E01C13/08](#), [E01C13/10](#) take precedence)
- E01C13/06B . . [N: at least one in-situ-layer consisting of or including bitumen, rubber or plastics]
- E01C13/08 . Surfaces simulating grass; [N: Grass-grown sports grounds (grass-like surfaces for skiing [E01C13/12](#))]
- E01C13/08B . . [N: Construction of grass-grown sports grounds; Drainage, irrigation or heating arrangements therefor]
- E01C13/10 . for artificial surfaces for outdoor or indoor practice of snow or ice sports ([E01C13/08](#) takes precedence; production of snow or ice for winter sports or similar recreational purposes [F25C3/00](#)) [C0903]
- E01C13/10B . . [N: 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]
- E01C13/10B2 . . . [N: of artificially refrigerated rinks or runs, e.g. cooled rink floors or swimming pools or tennis courts convertible into rinks]
- E01C13/10C . . [N: Non-frozen surfacings for ice, skating or curling rinks or for sledge runs; Rinks or runs with such surfacings]
- E01C13/12 . . for snow sports, [N: e.g. skiing or ski tow track (mechanical ski trails [A63C19/10](#))]
- E01C15/00 Pavings specially adapted for footpaths, sidewalks or cycle tracks**
- E01C17/00 Pavements lights, i.e translucent constructions forming part of the surface (blocks specially designed for marking roads [E01F9/04](#))**
- Guide heading: Machine, tools, or auxiliary devices for constructing or repairing the surfacing of roads or like structures (constructing the road bed [E02D](#), [E02F](#))**
- E01C19/00 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 [E01C21/00](#); apparatus specially adapted for reconditioning or repairing paving [E01C23/00](#))**

- E01C19/00B . [N: Apparatus for preparing and placing the materials and for consolidating or finishing the paving]
- E01C19/00C . [N: Devices for guiding or controlling the machines along a predetermined path (for graders or bulldozers [E02F3/84A](#); for other soil-shifting machines [E02F9/20H](#))]
- E01C19/00C2 . . [N: by laser or ultrasound]
- E01C19/00C3 . . [N: by reference lines placed along the road, e.g. wires co-operating with feeler elements ([E01C19/00C2](#) takes precedence)]
- E01C19/02 . for preparing the materials [N: ([E01C19/00B](#), [E01C19/45](#), [E01C19/46](#), [E01C21/00](#), [E01C23/06B](#) take precedence; producing hydraulic cement concrete in general [B28C5/00](#) to [B28C9/00](#))]
- E01C19/02B . . [N: 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]
- E01C19/05 . . Crushing, pulverising or disintegrating apparatus ([N: preparing and placing involving breaking [19/46C](#)]; in general [B02C](#)); Aggregate screening, cleaning, [N: drying] or heating apparatus; [N: Dust-collecting arrangements specially adapted therefor]
- E01C19/08 . . Apparatus for transporting and [N: heating or] melting asphalt, bitumen, tar, or the like (stationarily-arranged melting boilers for tar, asphalt, or the like, in general [C10C3/12](#))
- E01C19/10 . . Apparatus or plant for premixing or precoating aggregate or fillers with non-hydraulic binders, e.g. with bitumen, with resins, [N: 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 [N: ([E01C19/08](#), [E01C19/21](#), [E01C21/00](#), [E01C23/06B](#) take precedence)]
- E01C19/10B . . . [N: 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 ([E01C19/10D4C](#) takes precedence)]
- E01C19/10C . . . [N: Plant wherein type or construction of the mixer are irrelevant ([E01C19/10B](#) takes precedence)]
- E01C19/10D . . . [N: Plant characterised by the mode of operation or the construction of the mixing apparatus; Mixing apparatus; ([E01C19/10B](#), [E01C19/10E](#) take precedence)]
- E01C19/10D2 [N: Coating the solid ingredients by immersion in a bath of binder]
- E01C19/10D3 [N: Coating the solid ingredients by passing same through a shower or cloud of binder ([E01C19/21](#), [E01C19/48B2](#) take precedence)]
- E01C19/10D4 [N: Mixing in a rotary receptacle]
- E01C19/10D4B [N: the mixture being discharged continuously ([E01C19/10D4C](#) takes precedence)]
- E01C19/10D4C [N: 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]
- E01C19/10D5 [N: Mixing by means of movable members in a non-rotating mixing enclosure, e.g. stirrers ([E01C19/08](#) takes precedence)]
- E01C19/10D5B [N: the mixture being discharged continuously]
- E01C19/10D10 [N: Mixing or coating by a combination of methods covered by [E01C19/10D2](#) to [E01C19/10D5](#), excluding [E01C19/10D4C](#)]
- E01C19/10E . . . [N: 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 [E01C19/46B](#); recycling in place or on the road [E01C23/06B](#))
- [E01C19/10G](#) . . . [N: Controlling the operations; Devices solely for supplying or proportioning the ingredients]
- [E01C19/10G2](#) [N: Controlling the operations ([E01C19/10G3](#) takes precedence)]
- [E01C19/10G3](#) [N: Supplying or proportioning the ingredients]
- [E01C19/10G3B](#) [N: the solid ingredients]
- [E01C19/10G3C](#) [N: the liquid ingredients]
- [E01C19/12](#) . for distributing granular or liquid materials ([N: [E01C19/00B](#), [E01C19/45](#), [E01C19/46](#), [E01C19/48](#), [E01C23/03](#), [E01C23/06B](#)], [E01C23/07](#) take precedence; for filling joints or grooves [E01C23/02](#), [E01C23/09](#))
- [E01C19/15](#) . . 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 ([N: [E01C19/46C](#)], [E01C19/52](#) take precedence; distributing [E01C19/20](#); [N: laying down and rolling [E01C19/48B3](#)])
- [E01C19/16](#) . . for applying or spreading liquid materials, e.g. bitumen slurries ([N: [E01C19/10E](#), [E01C19/21](#),] [E01C19/45](#), [N: [E01C19/48B2](#), [E01C21/00](#),] [E01C23/02](#), [E01C23/03](#), [N: [E01C23/06B](#), [E01C23/09C](#), [E01C23/09D2](#), [E01C23/09E](#)], [E01C23/16](#) take precedence; [N: spreading-out or smoothing-down means as parts of spraying apparatus [E01C19/17E](#)])
- [E01C19/17](#) . . . Application by spraying [N: or throwing]
- [E01C19/17B](#) [N: Apparatus with discharge by surpressure in tank]
- [E01C19/17C](#) [N: Apparatus with pump-discharge]
- [E01C19/17D](#) [N: Spraying or throwing elements, e.g. nozzles; Arrangement thereof or supporting structures therefor, e.g. spray-bars]
- [E01C19/17E](#) [N: Elements or attachments for spreading-out or smoothing-down the applied material, e.g. brushes]
- [E01C19/18](#) . . Devices for distributing road-metals mixed with binders, e.g. cement, bitumen, without consolidating or ironing effect ([E01C19/20](#), [N: [E01C19/21](#), [E01C19/46](#)], [E01C19/47](#), [N: [E01C19/48](#), [E01C21/00](#), [E01C23/06B](#), [E01C23/07](#)] take precedence; conveying installation for concrete or the like [B65G](#))
- [E01C19/18B](#) . . . [N: solely for depositing]
- [E01C19/18C](#) . . . [N: for both depositing and spreading-out or striking-off the deposited mixture (laying-down the materials and consolidating them, or finishing the surface, [E01C19/48](#))]
- [E01C19/18D](#) . . . [N: solely for spreading-out or striking-off deposited mixtures, e.g. spread-out screws, strike-off boards]
- [E01C19/20](#) . . Apparatus for distributing, e.g. spreading, granular or pulverulent materials, e.g. sand, gravel, salt, dry binders ([N: [E01C19/21](#), [E01C19/48B2](#), [E01C19/48B3](#), [E01C23/09D2B](#), [E01C23/16E](#) take precedence;] fertiliser distributors [A01C15/00](#); [N: permanently-installed devices for applying gritting or thawing materials [E01H10/00C](#); mobile spreaders specially adapted for treating wintry roads [E01H10/00D](#)])
- [E01C19/20B](#) . . . [N: without driven loosening, discharging or spreading ([E01C19/20D](#) takes precedence)]
- [E01C19/20C](#) . . . [N: with driven loosening, discharging or spreading parts, e.g. power-driven, drive derived from road-wheels ([E01C19/20D](#) takes precedence)]
- [E01C19/20C2](#) [N: solely reciprocating, swinging to-and-fro, jolting or vibrating, e.g.

- E01C19/20C3
. . . .
oscillating stirrers, shaking spreading shoots]
- E01C19/20C3B
.
[N: solely rotating, e.g. discharging and spreading drums]
- E01C19/20C3C
.
[N: Throwers with substantially horizontal axis, e.g. drums or brushes rotated to fling the material at the surface]
- E01C19/20C4
.
[N: Centrifugal spreaders with substantially vertical axis]
- E01C19/20C4B
.
[N: both rotating parts and reciprocating, oscillating, jolting or vibrating parts]
- E01C19/20C5
.
[N: Throwers or centrifugal spreaders, e.g. spinner spreader with oscillating stirrer]
- E01C19/20D
. . . .
[N: spreading by means of an endless belt or like conveyer]
- E01C19/21
. . . .
[N: the material being spread by means of a gaseous current]
- E01C19/22
. . . .
for simultaneously but separately applying liquid material and granular or pulverulent material, e.g. bitumen and grit, with or without spreading [N: (with rolling [E01C19/48B2](#)); for filling grooves and gritting the filling]
- E01C19/23
. . . .
for consolidating or finishing laid-down unset materials ([N: [E01C19/00B](#), [E01C19/48](#), [E01C21/00](#)] [E01C23/02](#) [N: [E01C23/06B](#)] take precedence; apparatus for generating vibrations in general [B06B](#))
- E01C19/23B
. . . .
Rollers therefor; Such rollers usable also for compacting soil ([N: [E01C19/41](#),] [E01C19/43](#), [N: [E01C19/52](#), [E01C23/06B](#)] take precedence; specially adapted for agricultural purposes [A01B29/00](#); garden rollers [A01G1/12](#); making or maintaining surfaces of snow or ice [E01H4/00](#); solely for soil compaction [E02D3/026](#))
- E01C19/23B2
. . . .
[N: 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 [E01C19/27](#); rigid-roll rollers with conventional pneumatic-tyred tractors or traction-units [E01C19/25](#), [E01C19/26](#), [E01C19/28](#))]
- E01C19/23C
. . . .
[N: the rigid rolling elements being vibrated or subjected to impacts (with vibrated elastically-deformable rolling elements [E01C19/28F](#))]
- E01C19/23D
. . . .
[N: Rolling apparatus designed to roll following a path other than essentially linear, e.g. epicycloidal]
- E01C19/23E
. . . .
[N: Construction of the rolling elements, e.g. surface configuration, rolling surface formed by endless track]
- E01C19/24
. . . .
[N: Wetting, cleaning or heating rolling elements, e.g. oiling, wiping, scraping]
- E01C19/25
. . . .
hand propelled ([N: [E01C19/23C](#),] [E01C19/27](#) to [E01C19/29](#), [N: [E01C19/41](#)] take precedence)
- E01C19/25B
. . . .
propelled by animals or vehicles ([N: [E01C19/23C](#),] [E01C19/26](#) to [E01C19/29](#) take precedence)
- E01C19/26
. . . .
[N: by vehicles placed on the rolling device; provided with means for facilitating rapid road transport, e.g. retractable transport wheels]
- E01C19/26B
. . . .
self-propelled or fitted to road vehicles ([N: [E01C19/23B](#), [E01C19/23C](#),] [E01C19/27](#) to [E01C19/29](#) take precedence)
- E01C19/26C
. . . .
[N: pedestrian-controlled, e.g. with safety arrangements for operator]
- E01C19/26D
. . . .
[N: with attachments for work other than rolling, e.g. grading, scarifying (rollers fitted to road-construction or earth-moving machinery [E01C19/26D](#))]
- E01C19/26E
. . . .
[N: fitted to vehicles, road-construction or earth-moving machinery, e.g. auxiliary roll readily movable to operative position ([E01C19/26E](#), [E01C19/48B](#), [E01C19/48E](#), [E01C19/52](#), [E01C21/00](#), [E01C23/06B](#) 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]

- E01C19/26E [N: 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 E02D3/032](#); [slope rollers E02D3/039](#))]
- E01C19/27 . . . with elastically-deformable rolling elements, e.g. pneumatic tyres ([N: [E01C19/23B](#) takes precedence]; [vibrating or impacting E01C19/28](#))
- E01C19/28 . . . Vibrated rollers or rollers subjected to impacts, e.g. hammering blows ([N: [E01C19/23C](#),] [E01C19/29](#), [N: [E01C19/41](#)] take precedence; [N: combined with non-vibrated elastically-deformable rolling elements [E01C19/23B2](#)])
- E01C19/28B [N: propelled by hand or by vehicles, e.g. towed ([E01C19/28D](#) to [E01C19/28G](#) take precedence)]
- E01C19/28C [N: self-propelled, e.g. with an own traction-unit ([E01C19/28D](#) to [E01C19/28G](#) take precedence)]
- E01C19/28C2 [N: pedestrian-controlled, e.g. with safety arrangements for operator]
- E01C19/28D [N: 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 ([E01C19/29](#), [E01C19/48B](#), [E01C19/48E](#), [E01C19/52](#), [E01C21/00](#), [E01C23/06B](#) take precedence); vibrated or the like auxiliary rolls, e.g. for rolling road edges; provided with means for facilitating transport]
- E01C19/28E [N: 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 ([E01C19/28F](#) and [E01C19/28G](#) take precedence)]
- E01C19/28F [N: 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 [E01C19/23B2](#))]
- E01C19/28G [N: 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]
- E01C19/29 . . . Rolling apparatus adapted to apply a rolling pressure less than its weight, e.g. roller finishers travelling on formrail [N: 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]
- E01C19/30 . . Tamping or vibrating apparatus other than rollers [N: ;Devices for ramming individual paving elements] ([N: [E01C19/41](#), [E01C19/43](#), [E01C19/48C](#), [E01C19/48E](#), [E01C19/48H](#), [E01C19/52](#), [E01C21/00](#),] [E01C23/02](#), [E01C23/04](#) take precedence; vibrated depositing devices [E01C19/12](#); tamping or vibrating rollers [E01C19/28](#); portable percussion tools [B25D](#); tamping or vibrating soil [E02D3/046](#))
- E01C19/32 . . . Hand-held hand-actuated rammers or tampers
- E01C19/34 . . . Power-driven rammers or tampers, [N: 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]
- E01C19/35 Hand-held or hand-guided tools ([E01C19/36](#) to [E01C19/40](#) take precedence)
- E01C19/36 with direct-acting explosion chambers
- E01C19/38 with means specifically for generating vibrations, [N: e.g. vibrating plate compactors, immersion vibrators ([E01C19/40](#), [E01C19/41](#) take precedence)]
- E01C19/40 adapted to impart a smooth finish to the paving, e.g. tamping or vibrating

finishers

[N: **Note**

When classifying in group [E01C19/40B](#), classification is also made in groups [E01C19/40D](#) or [E01C19/40E](#) if of interest]

- E01C19/40B [N: the tools being hand-guided] [N0304]
- E01C19/40D [N: 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 ([E01C19/40E](#) takes precedence)]
- E01C19/40E [N: 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]
- E01C19/41 . . Apparatus having both rolling tools and ramming, tamping, or vibrating tools
- E01C19/42 . . Machines for imparting a smooth finish to freshly-laid paving courses other than by rolling, tamping or vibrating (for distributing only [E01C19/12](#); [N: hand-actuated smoothing tools [E01C19/44](#)])
- E01C19/43 . . Machines or arrangements for roughening or patterning freshly-laid paving courses, e.g. indenting rollers
- E01C19/44 . . Hand-actuated tools other than rollers, tampers, or vibrators, specially adapted for imparting a required finish to freshly-laid paving courses ([E01C19/43](#), [N: [E01C23/02](#)] take precedence)
- E01C19/45 . Portable apparatus for preparing, or for preparing and applying to the road, compound liquid binders, e.g. emulsified bitumen, fluxed asphalt ([applying only E01C19/16](#))
- E01C19/46 . for preparing and placing the materials [N: e.g. slurry seals] ([N: [E01C19/00B](#),] [E01C19/45](#), [N: [E01C21/00](#), [E01C23/06B](#)] take precedence)
- E01C19/46B . . [N: 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]
- E01C19/46C . . [N: Solid materials, e.g. crushing same]
- E01C19/47 . . Hydraulic cement concrete mixers combined with distributing means specially adapted for road building ([N: [E01C19/02B](#) takes precedence]; [concrete mixers per se B28C](#))
- E01C19/47B . . . [N: Distributing means therefor, e.g. boom-and-bucket arrangements]
- E01C19/48 . for laying-down the materials and consolidating them, or finishing the surface, [N: e.g. slip forms therefor, forming kerbs or gutters in a continuous operation in situ ([E01C19/00B](#), [E01C23/06B](#) take precedence; devices for guiding or controlling the machines along a predetermined path [E01C19/00C](#))]
- E01C19/48B . . [N: with solely rollers for consolidating or finishing ([E01C19/48H](#) takes precedence; combined with other consolidating or finishing means [E01C19/48E](#))]
- E01C19/48B2 . . . [N: the materials being simultaneously but separately applied binders and granular or pulverulent material (such application per se [E01C19/21](#))]
- E01C19/48B3 . . . [N: the materials being uncoated stone or similar granular materials, e.g. sand (laying-down uncoated stone or similar materials per se [E01C19/15](#); distributing granular or pulverung materials per se [E01C19/20](#))]
- E01C19/48B4 . . . [N: the materials being aggregate mixed with binders (distributing per se [E01C19/18](#))]

- E01C19/48C . . [N: 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 ([E01C19/48B](#), [E01C19/48H](#) take precedence; combined with rollers [E01C19/48E](#))]
- E01C19/48C2 . . . [N: Rail- or like-borne apparatus, e.g. sliding on side forms, rolling on form rails, kerbs or like trackways]
- E01C19/48C2C [N: 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]
- E01C19/48C3 . . . [N: Apparatus designed for railless operation, e.g. crawler-mounted, provided with portable trackway arrangements]
- E01C19/48C3C [N: with non-vibratory or non-percussive pressing or smoothing means; with supplemental elements penetrating the paving to work the material thereof]
- E01C19/48D . . [N: with solely non-vibratory or non-percussive pressing or smoothing means for consolidating or finishing ([E01C19/48H](#) takes precedence; combined with rollers [E01C19/48E](#))]
- E01C19/48D3 . . . [N: Apparatus designed for railless operation]
- E01C19/48E . . [N: with rollers for consolidating or finishing combined with tamping, vibrating, pressing or smoothing consolidation or finishing means ([E01C19/48H](#) takes precedence)]
- E01C19/48H . . [N: 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 [E01C19/50B3](#); making conduits in situ [E02D29/10](#))]
- E01C19/48H5 . . . [N: Apparatus designed for railless operation]
- E01C19/50 . . Removable forms or shutterings for road-building purposes ([E01C23/02](#), [E01C23/04](#) take precedence; permanent forms [E01C3/00](#) to [E01C7/00](#), [N: [E01C9/00](#) to [E01C17/00](#)]; slip forms [E01C19/48](#)); Devices or arrangements for forming individual paving elements, e.g. kerbs, in situ
- E01C19/50B . . [N: Removable forms or shutterings, e.g. side forms; Removable supporting or anchoring means therefor, e.g. stakes (for forming individual elements [E01C19/50C](#); for grooves or like channels [E01C23/02B](#))]
- E01C19/50B2 . . . [N: 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 [E01C23/04B](#))]
- E01C19/50B3 . . . [N: for kerbs, gutters or similar structures, e.g. raised portions, median barriers]
- E01C19/50C . . [N: Devices or arrangements for forming individual paving elements in situ, e.g. by sectioning a freshly-laid slab (permanent forms therefor [E01C9/00B](#); imprinting freshly-laid paving to simulate stones [E01C19/43](#); cutting sett paving [E01C23/09B](#))]
- E01C19/52 . . Apparatus for laying individual preformed surfacing elements, e.g. kerbstones [C0302]
- E01C19/52B . . [N: Apparatus for laying the elements by rolling or unfolding, e.g. for temporary pavings]
- E01C19/52C . . [N: using suction devices]
- E01C19/52D . . [N: hand operated ([E01C19/52C](#) takes precedence)] [N0203]
- E01C19/52D2 . . . [N: with wheels] [N0203]
- E01C21/00** . . **Apparatus or processes for surface [N: soil] stabilisation for road building or like purposes, e.g. mixing local aggregate with binder** ([N: recycling in place or on the road involving soil stabilisation [E01C23/06B](#)]; stabilising soil under existing surfacing

[E01C23/10](#); soil-conditioning or soil-stabilising materials [C09K17/00](#); soil consolidation in general [E02D3/12](#))

- [E01C21/02](#)
- Fusing, calcining, or burning soil in situ [N: (improving soil by thermal means in general [E02D3/11](#); devices for heating foundation or paving [E01C23/14](#))]
- [E01C23/00](#)** **Auxiliary devices or arrangements for constructing, repairing, reconditioning, or taking-up road or like surfaces (apparatus for reconditioning of salvaged non-hydraulic compositions [N: for- in plant recycling of salvaged bituminous mixtures] [E01C19/10](#))**
- [E01C23/01](#)
- Devices or auxiliary means for setting-out or checking the configuration of new surfacing, e.g. templates, screed [N: or reference line] supports (form rails [E01C19/50](#)); Applications of apparatus for measuring, indicating, or recording the surface configuration of existing surfacing, e.g. profilographs ([E01C23/07](#) takes precedence; measuring roughness or irregularity in general [G01B](#))
- [E01C23/02](#)
- Devices for making, treating or filling grooves or like channels in not-yet-hardened paving, e.g. for joints or markings (surface patterning [E01C19/43](#)); Removable forms therefor (non-removable forms [E01C11/02](#)); Devices for introducing inserts or removable insert-supports in not-yet-hardened paving ([E01C23/04](#) takes precedence; non-removable [N: joint] insert supports [E01C11/02](#))
- [E01C23/02B](#)
- [N: Removable, e.g. reusable, forms for grooves or like channels ([E01C23/02F](#) takes precedence; groove-forming members of groove-making apparatus [E01C23/02D](#), [E01C23/02E](#)); Installing same prior to placing the paving (into laid paving [E01C23/02E](#))]
- [E01C23/02C](#)
- [N: Removable joint-body supports ([E01C23/04B](#) take precedence); Installing joint or like bodies, e.g. waterstops, prior to placing the paving (into laid paving [E01C23/02E](#) takes precedence)]
- [E01C23/02D](#)
- [N: Making or working grooves or like channels in laid paving, e.g. smoothing groove edges ([E01C23/02E](#), [E01C23/02F](#) take precedence)]
- [E01C23/02E](#)
- [N: 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 ([E01C23/02F](#) takes precedence)]
- [E01C23/02F](#)
- [N: Positioning or producing markings, e.g. by forcing marking materials into the surface, by scoring]
- [E01C23/03](#)
- Arrangements for curing paving; Devices for applying curing means; Devices for laying prefabricated underlay, e.g. sheets, membranes (reinforcing elements [E01C23/04](#)); Protecting paving under construction or while curing, e.g. use of tents (road barriers [E01F13/00](#)) [[C9703](#)]
- [E01C23/04](#)
- Devices for laying [N: inserting or positioning] reinforcing elements or dowel bars [N: with or without joint bodies (installing or inserting joint bodies per se [E01C23/02C](#), [E01C23/02E](#))]; Removable support for reinforcing [N: or load transfer] elements (non-removable supports therefor [N: [E01C11/02](#)] [E01C11/16](#); side forms adapted to supporting reinforcement [E01C19/50](#)); Devices, e.g. removable forms, for making essentially horizontal ducts in paving, e.g. for prestressed reinforcements
- [E01C23/04B](#)
- [N: Removable, e.g. reusable supports for positioning reinforcing or load transfer elements, adapted or not to also hold joint bodies]
- [E01C23/05](#)
- Devices for installing or removing forms
- [E01C23/06](#)
- Devices or arrangements for working the finished surface (working freshly laid paving

- [E01C19/42](#) to [E01C19/44](#), [E01C23/02](#); mining picks [E21C35/18](#)); Devices for repairing [N: or reconditioning] the surface of damaged paving; [N: Recycling in place or on the road]
- [E01C23/06B](#) . . . [N: 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 [E01C19/02B](#); apparatus for in-plant recycling [E01C19/10B](#), [E01C19/10D4C](#))]
- [E01C23/07](#) . . . Apparatus combining measurement of the surface configuration of paving with application of material in proportion to the measured irregularities (measuring means only [E01C23/01](#), [N: [G01B](#)])
- [E01C23/08](#) . . . for roughening or patterning; for removing [N: the surface down to a predetermined depth] high spots or material bonded to the surface, e.g. markings; [N: 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 [E01H1/00](#); roughening or detaching ice [E01H5/12](#))
- [E01C23/08D](#) [N: by thermal or cryogenic treatment, excluding heating to facilitate mechanical working]
- [E01C23/082](#) using non-powered tools
- [E01C23/082B](#) [N: rotary, e.g. gang discs]
- [E01C23/085](#) using power-driven tools, e.g. vibratory tools
- [E01C23/085B](#) [N: moved rectilinearly, e.g. scabblers]
- [E01C23/088](#) Rotary tools, e.g. milling drums [N: (for forming recesses to receive marking materials [E01C23/09B3B3](#))]
- [E01C23/088B](#) [N: with vertical or steeply inclined rotary axis]
- [E01C23/09](#) . . . 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
- [E01C23/09B](#) [N: for forming, opening-out, cleaning, drying or heating cuts, grooves, recesses or, excluding forming, cracks, e.g. cleaning by sand-blasting or air-jet ([E01C23/09C](#), [E01C23/09E](#) take precedence, save for [E01C23/09B3B3](#)); for trimming paving edges]
- [E01C23/09B2](#) [N: with non-powered tools, e.g. trailed router blade]
- [E01C23/09B2B](#) [N: rotary, e.g. edge trimmer disc]
- [E01C23/09B3](#) [N: with power-driven tools, e.g. vibrated, percussive cutters]
- [E01C23/09B3B](#) [N: rotary, e.g. circular-saw joint cutters]
- [E01C23/09B3B2](#) [N: about vertical or inclined axes, e.g. for core sampling ([E01C23/09B3B3](#) takes precedence)]
- [E01C23/09B3B3](#) [N: 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 [E01C23/09E](#))]
- [E01C23/09B4](#) [N: by thermal effect, e.g. cutting by melting, cleaning drying or heating with hot jets]
- [E01C23/09C](#) [N: for forming, opening-out, cleaning, drying or heating and filling ([E01C23/09E](#) takes precedence)]
- [E01C23/09D](#) [N: 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 ([E01C23/09C](#), [E01C23/09E](#) take precedence)]
- [E01C23/09D2](#) [N: with liquid or semi-liquid materials, e.g. crack sealants]

- E01C23/09D2B [N: and working the surface of the filling or applying particulate material thereto, e.g. smoothing, gritting]
- E01C23/09D3 [N: with preformed elements, e.g. joint strips]
- E01C23/09E [N: 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 ([E01C23/09B3B3](#) takes precedence)]
- E01C23/10 for raising or levelling sunken paving; for filling voids under paving; for introducing material into substructure ([consolidating soil in general](#) [E02D3/12](#))
- E01C23/12 for taking-up, tearing-up, or [N: full-depth] breaking-up paving, [N: e.g. sett extractor] ([adapted to both placing and removing](#) [N: preformed] paving [N: elements] [E01C19/52](#))
- E01C23/12B [N: with non-powered tools, e.g. rippers ([rollers with ripping attachments](#) [E01C19/26C](#), [E01C19/27](#), [E01C19/28D](#); [roughening or patterning using non powered tools](#) [E01C23/082](#))] [C9810]
- E01C23/12C [N: with power-driven tools, e.g. oscillated hammer apparatus ([hand-held breakers: percussion tools](#) [B25D](#))]
- E01C23/12C2 [N: moved rectilinearly, e.g. road-breaker apparatus with reciprocating tools, with drop-hammers]
- E01C23/12C2B [N: with direct-acting explosion chambers, i.e. Diesel breakers]
- E01C23/12C3 [N: rotary, e.g. rotary hammers]
- E01C23/12D [N: with hydrojets ([hydraulic cleaning](#) [E01H1/10B](#))] [N0302]
- E01C23/14 for heating or drying foundation, paving, or materials thereon, e.g. paint ([E01C23/03](#) takes precedence; heating or drying devices incorporated in the paving [E01C11/26](#); surface [N: soil] stabilisation by fusing, calcining or burning soil in situ [E01C21/02](#); for street cleaning [E01H1/08](#); melting snow or ice on surfacing [E01H5/10](#))
- E01C23/16 Devices for marking-out, applying, or forming traffic or like markings on finished paving ([E01C23/14](#) takes precedence; inserting or forming in not-yet-hardened paving [E01C23/02](#), in recesses formed in fully-set paving [E01C23/09](#); marking-out playing courts or playgrounds [A63C19/06](#); applying liquids or other fluent materials to surfaces in general [B05](#); road surface markings per se [E01F9/04](#)); Protecting fresh markings [N: ([indicating fresh markings](#) [E01F9/012G](#))] [C9703]
- E01C23/16B [N: for marking-out the location of the markings; Guiding or steering devices for marking apparatus, e.g. sights]
- E01C23/16E [N: 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]
- E01C23/18 for applying prefabricated markings
- E01C23/18B [N: Tape- or sheet-shape markers or carriers]
- E01C23/20 for forming markings in situ
- E01C23/20B [N: the marking material being applied to the surface by contact with an application tool, e.g. paint roller]
- E01C23/20C [N: by applying fusible particulate material to the surface, e.g. by means of a gaseous stream]
- E01C23/22 by spraying [N: ([E01C23/20C](#) takes precedence)]
- E01C23/22C [N: specially adapted for automatic spraying of interrupted, individual or variable markings]
- E01C23/22D [N: comprising means for mechanically working the applied material, e.g. smoothing brushes]

- E01C23/22E [N: the marking material being supplied in aerosol containers]
- E01C23/24 by pouring
- E01C23/24C [N: specially adapted for automatic pouring of interrupted, individual or variable markings]
- E01C23/24D [N: comprising means for mechanically working the applied material, e.g. smoothing brushes]