

# CPC COOPERATIVE PATENT CLASSIFICATION

## E FIXED CONSTRUCTIONS

### BUILDING

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

#### 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](#))

##### WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

<b>1/00</b>	<b>Design or layout of roads, e.g. for noise abatement, for gas absorption</b> (design or layout of sports grounds <a href="#">A63C 19/00</a> ; design or layout of airfields <a href="#">B64F</a> {, of helicopter landing stages <a href="#">E01F 3/00</a> })	3/04	. Foundations produced by soil stabilisation {(soil stabilisation for road building in general <a href="#">E01C 7/36</a> )}
1/002	. {Design or lay-out of roads, e.g. street systems, cross-sections ( <a href="#">E01C 1/005</a> , <a href="#">E01C 1/007</a> take precedence; of footpaths, sidewalks, berms, hard shoulders or cycle tracks <a href="#">E01C 15/00</a> ); Design for noise abatement, e.g. sunken road (reducing transmission of structure-born noise <a href="#">E01C 3/06</a> ; 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 <a href="#">E01F 8/00</a> )}	3/06	. Methods or arrangements for protecting foundations from destructive influences of moisture, frost or vibration {(heating devices <a href="#">E01C 11/26</a> ; draining the subbase of roads <a href="#">E01F 5/00</a> )}
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, <a href="#">B08B 15/002</a> )}	<b>5/00</b>	<b>Pavings made of prefabricated single units</b> (specially adapted for playgrounds or sports grounds <a href="#">E01C 13/04</a> , for footpaths, sidewalks or cycle tracks <a href="#">E01C 15/00</a> ; making artificial stones <a href="#">C04B</a> ; building stones <a href="#">E04C</a> ; flooring <a href="#">E04F</a> )
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 <a href="#">E01C 9/007</a> ; road surface configuring or surface arrangements for enforcing reduced speed or required caution, e.g. speed-control humps <a href="#">E01F 9/529</a> )}	5/001	. {on prefabricated supporting structures or prefabricated foundation elements except coverings made of layers of similar elements}
1/02	. Crossings, junctions or interconnections between roads on the same level {(construction of traffic islands <a href="#">E01F 1/00</a> )}	5/003	. {characterised by material or composition used for beds or joints; characterised by the way of laying}
1/04	. Road crossings on different levels; Interconnections between roads on different levels	5/005	. {Individual couplings or spacer elements for joining the prefabricated units ( <a href="#">E01C 5/10</a> takes precedence)}
		5/006	. . {Individual spacer elements}
		5/008	. {made of vegetable stems, e.g. straw, thatch (of wood <a href="#">E01C 5/14</a> ); made of textiles (of bituminous textile webs <a href="#">E01C 5/12</a> ; of linoleum <a href="#">E01C 5/20</a> )}
		5/02	. made of natural stones, e.g. sett stones {(as inserts in binders or bound thereby into greater unity <a href="#">E01C 5/22</a> )}
		5/04	. made of bricks {(of asphalt bricks <a href="#">E01C 5/12</a> )}
		5/06	. made of units with cement or like binders
		5/065	. . {characterised by their structure or component materials, e.g. concrete layers of different structure, special additives}
		5/08	. . Reinforced units {with steel frames (with metal upper or under layers <a href="#">E01C 5/22</a> )}
<b>3/00</b>	<b>Foundations for pavings</b> (specially adapted for playgrounds or sports grounds <a href="#">E01C 13/02</a> ; foundations in general <a href="#">E02D</a> )	5/085	. . . {on prefabricated supporting structures or prefabricated foundation elements except coverings made of layers of similar elements}
3/003	. {characterised by material or composition used, e.g. waste or recycled material ( <a href="#">E01C 3/006</a> , <a href="#">E01C 3/04</a> and <a href="#">E01C 3/06</a> take precedence)}	5/10	. . . Prestressed reinforced units {; Prestressed coverings from reinforced or non-reinforced units (prestressed concrete coverings <a href="#">E01C 7/16</a> )}
3/006	. {made of prefabricated single units ( <a href="#">E01C 3/06</a> takes precedence)}		
3/02	. Concrete base for bituminous paving		
<b><u>Structure of roads, playgrounds, sports grounds, airfields</u></b>			

- 5/105 . . . . {on prefabricated supporting structures or prefabricated foundation elements, except coverings made of layers of similar elements}
- 5/12 . made of units with bituminous binders {or from bituminous material, e.g. asphalt mats}
- 5/14 . made of wooden units
- 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](#))
- 5/18 . made of rubber units {(of units made from other material and having a rubber upper layer [E01C 5/226](#))}
- 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](#))}
- 5/22 . made of units composed of a mixture of materials covered by two or more of groups {[E01C 5/008](#)}, [E01C 5/02](#) - [E01C 5/20](#) {except embedded reinforcing materials}
- 5/223 . . {on prefabricated supporting or prefabricated foundation units, except coverings made of layers of similar elements}
- 5/226 . . {having an upper layer of rubber, with or without inserts of other materials; with rubber inserts}
- 7/00 Coherent pavings made in situ** (specially adapted for playgrounds or sports grounds [E01C 13/06](#); for footpaths, sidewalks or cycle tracks [E01C 15/00](#))
- 7/02 . made of road-metal without binders
- 7/04 . . of broken stones, gravel, or like materials
- 7/06 . . by melting, burning, or vitrifying road-metal in situ
- 7/08 . made of road-metal and binders {([E01C 7/36](#) takes precedence)}
- 7/085 . . {Aggregate or filler materials therefor; Coloured reflecting or luminescent additives therefor (thin surface layers or surface dressings [E01C 7/35](#))}
- 7/10 . . of road-metal and cement or like binders (cement or like binders, composition of mortars [C04B](#))
- 7/12 . . . Mortar-bound paving
- 7/14 . . . Concrete paving {(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](#))}
- 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](#))}
- 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](#))}
- 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](#))}
- 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](#))}
- 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](#))}
- 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](#))}
- 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](#))}
- 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](#))}
- 7/20 . . . Binder incorporated in cold state, e.g. natural asphalt
- 7/22 . . . Binder incorporated in hot state, e.g. heated bitumen
- 7/24 . . . Binder incorporated as an emulsion or solution (making dispersions or emulsions for road building [C04B](#))
- 7/26 . . . mixed with other materials, e.g. cement, rubber, leather, fibre {(fibrous material reinforcements for bituminous paving [E01C 11/165](#))}
- 7/262 . . . . {with fibrous material, e.g. asbestos; with animal or vegetal admixtures, e.g. leather, cork ([E01C 7/265](#) takes precedence)}
- 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](#))}
- 7/267 . . . . {with sulfur}
- 7/30 . . of road-metal and other binders, e.g. synthetic material {, i.e. resin}
- 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](#)
- 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](#))}
- 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](#))}
- 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](#))}

- 7/351 . . . {with exclusively hydraulical binders; Aggregate, fillers or other additives for application on or in the surface of toppings with exclusively hydraulic binders}
- 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}
- 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}
- 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}
- 7/358 . . . {with a combination of two or more binders according to groups [E01C 7/351 - E01C 7/356](#)}
- 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](#))}
- 9/00** **Special pavings** (specially adapted for playgrounds or sports grounds [E01C 13/00](#), for footpaths, sidewalks or cycle tracks [E01C 15/00](#)); **Pavings for special parts of roads or airfields** (pavement lights [E01C 17/00](#); manholes or like covers or frames [E02D 29/14](#))
- 9/001 . . . {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](#))}
- 9/002 . . . {Coverings, the surface of which consists partly of prefabricated units and partly of sections made in situ}
- 9/004 . . . {Pavings specially adapted for allowing vegetation (individual spacer elements [E01C 5/006](#))}
- 9/005 . . . {Coverings around trees forming part of the road (protecting plants in general [A01G 13/00](#))}
- 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 9/529](#)); Escape roads, e.g. for steep descents, for sharp bends}
- 9/008 . . . {Paving take-off areas for vertically starting aircraft (landing platforms for helicopters [E01F 3/00](#))}
- 9/02 . . . Wheel tracks (rail tracks for guiding vehicles [E01B 25/28](#))
- 9/04 . . . Pavings for railroad level-crossings
- 9/06 . . . Pavings adjacent tramways rails {; Pavings comprising railway tracks}
- 9/08 . . . Temporary pavings {(E01C 9/008 takes precedence } ; steel gratings [E01C 9/10](#))}
- 9/083 . . . {made of metal, e.g. plates, network}
- 9/086 . . . {made of concrete, wood, bitumen, rubber or synthetic material or a combination thereof}
- 9/10 . . . Steel gratings {; Gratings made of material other than steel} {(E01C 9/001 - E01C 9/02, E01C 9/06 take precedence; metal gratings for bridge floorings [E01D 19/125](#); } gully gratings [E03F 5/06](#))}
- 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)}
- 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](#))}
- 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](#))}
- 11/04 . . . for cement concrete paving {(E01C 9/001 takes precedence)}
- 11/045 . . . {specially adapted for prestressed paving}
- 11/06 . . . Methods of making joints
- 11/08 . . . Packing of metal {(E01C 11/045 takes precedence)}
- 11/10 . . . Packing of plastic or elastic materials {, e.g. wood, resin (E01C 11/045 takes precedence)}
- 11/103 . . . . {Joints with packings prepared only in situ; Materials therefor}
- 11/106 . . . . {Joints with only prefabricated packing; Packings therefor}
- 11/12 . . . Packing of metal and plastic or elastic materials {(E01C 11/045 takes precedence)}
- 11/123 . . . . {Joints with only metal and in situ prepared packing or filling}
- 11/126 . . . . {Joints with only metal and prefabricated packing or filling}
- 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 - E01C 11/12](#); removable holders [E01C 23/045](#))}
- 11/16 . . . Reinforcements {(as anchoring elements between layers [E01C 7/145](#), [E01C 7/185](#), [E01C 7/325](#) } ; for building in general [E04C](#))}
- 11/165 . . . {particularly for bituminous or rubber- or plastic-bound pavings (bituminated textile webs [E01C 5/12](#))}
- 11/18 . . . for cement concrete pavings {(prefabricated reinforced units [E01C 5/08](#))}
- 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](#))}
- 11/20 . . . for prestressed concrete pavings {(from prefabricated concrete units, similar prestressed units [E01C 5/10](#))}
- 11/22 . . . Gutters; Kerbs (kerbs specially adapted for alerting road users [E01F 9/535](#) ) {; Surface drainage of streets, roads or like traffic areas (for sports grounds [E01C 13/00](#))}

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 <a href="#">E01F 9/535</a> ); Joint members, connecting or load-transfer means specially for kerbs}	13/003	. {Construction of, or surfacings for, rinks or tracks for roller skating, skate-boarding or the like (layout of roller-skating rinks <a href="#">A63C 19/10</a> )}
11/222	. . . {Raised kerbs, e.g. for sidewalks ( <a href="#">E01C 11/223</a> , <a href="#">E01F 9/535</a> , <a href="#">E01F 9/547</a> take precedence; preformed sidewalk paving with integral kerb <a href="#">E01C 15/00</a> ; specially for traffic islands <a href="#">E01F 1/00</a> ); Integrated or portable means for facilitating ascent or descent}	2013/006	. {Transportable sport surfaces for multipurpose stadiums}
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 <i>per se</i> <a href="#">E01C 11/227</a> ; gullies adapted to be used with kerbs, gully gratings <a href="#">E03F 5/04</a> , <a href="#">E03F 5/06</a> ); Kerbs adapted to house cables or pipes, or to form conduits}	13/02	. Foundations, e.g. with drainage or heating arrangements { ( <a href="#">E01C 13/003</a> , <a href="#">E01C 13/083</a> , <a href="#">E01C 13/10</a> take precedence; drainage of soil <a href="#">E02B 11/00</a> )}
11/224	. . {Surface drainage of streets (draining the subbase of roads, by trenches <a href="#">E01F 5/00</a> , by sewers <a href="#">E03F</a> ; draining arrangements for bridges <a href="#">E01D 19/086</a> )}	13/04	. Pavings made of prefabricated single units ({ <a href="#">E01C 13/003</a> , <a href="#">E01C 13/06</a> }, <a href="#">E01C 13/08</a> , <a href="#">E01C 13/10</a> take precedence)
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 ( <a href="#">E01C 9/004</a> , <a href="#">E01C 9/008</a> , <a href="#">E01C 9/08</a> , <a href="#">E01C 9/10</a> , <a href="#">E01C 11/228</a> , <a href="#">E01C 13/00</a> take precedence)}	13/045	. . {the prefabricated single units consisting of or including bitumen, rubber or plastics}
11/226	. . . . {Coherent pavings}	13/06	. Pavings made <i>in situ</i> , {e.g. for sand grounds, clay courts <a href="#">E01C 13/003</a> }, ( <a href="#">E01C 13/08</a> , <a href="#">E01C 13/10</a> take precedence)
11/227	. . . {Gutters; Channels ( <a href="#">E01C 11/223</a> takes precedence; permanently installed flushing means <a href="#">E01H 3/04</a> ); Roof drainage discharge ducts set in sidewalks}	13/065	. . {at least one <i>in situ</i> layer consisting of or including bitumen, rubber or plastics}
11/228	. . . . {Gutters for porous pavings}	13/08	. Surfaces simulating grass {; Grass-grown sports grounds (grass-like surfaces for skiing <a href="#">E01C 13/12</a> )}
11/229	. . . . {Shallow gutters, i.e. gutters forming a minor pothole}	13/083	. . {Construction of grass-grown sports grounds; Drainage, irrigation or heating arrangements therefor}
11/24	. Methods or arrangements for preventing slipperiness or protecting against influences of the weather {(measures taken in connection with the foundation <a href="#">E01C 3/06</a> ; paving elements with anti-slip inlays <a href="#">E01C 5/22</a> ; aggregates resisting to grinding <a href="#">E01C 7/085</a> , <a href="#">E01C 7/142</a> , <a href="#">E01C 7/182</a> ; specially for surface layers <a href="#">E01C 7/35</a> ; reinforcements extending up to the surface <a href="#">E01C 11/16</a> , <a href="#">E01C 11/18</a> , <a href="#">E01C 11/185</a> ; drainage <a href="#">E01C 11/22</a> ; windscreens <a href="#">E01F 7/02</a> ; snow fences <a href="#">E01F 7/02</a> ; combating fog <a href="#">E01H 13/00</a> )}	2013/086	. . {Combination of synthetic and natural grass}
11/245	. . {for preventing ice formation or for loosening ice, e.g. special additives to the paving material, resilient coatings ( <a href="#">E01C 11/26</a> takes precedence; built-in sanding or sprinkling devices <a href="#">E01H 10/00</a> )}	13/10	. for artificial surfaces for outdoor or indoor practice of snow or ice sports ( <a href="#">E01C 13/08</a> takes precedence; production of snow or ice for winter sports or similar recreational purposes <a href="#">F25C 3/00</a> )
11/26	. . Permanently installed heating or blowing devices {(specially for combating fog <a href="#">E01H</a> ; built-in melting devices for dislodged snow <a href="#">E01H 5/102</a> ); Mounting thereof}	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}
11/265	. . . {Embedded electrical heating elements (in floors <a href="#">F24D 13/00</a> ); Mounting thereof}	13/105	. . . {of artificially refrigerated rinks or runs, e.g. cooled rink floors or swimming pools or tennis courts convertible into rinks}
<b>13/00</b>	<b>Pavings or foundations specially adapted for playgrounds or sports grounds; {Drainage, irrigation or heating of sports grounds} (general layout <a href="#">A63C 19/00</a>)</b>	13/107	. . {Non-frozen surfacings for ice, skating or curling rinks or for sledge runs; Rinks or runs with such surfacings}
		13/12	. . for snow sports {, e.g. skiing or ski tow track ( <a href="#">mechanical ski trails <a href="#">A63C 19/10</a></a> )}
		<b>15/00</b>	<b>Pavings specially adapted for footpaths, sidewalks or cycle tracks</b>
		<b>17/00</b>	<b>Pavement lights, i.e. translucent constructions forming part of the surface (blocks specially designed for marking roads <a href="#">E01F 9/524</a>)</b>
		<b><u>Machine, tools, or auxiliary devices for constructing or repairing the surfacing of roads or like structures (constructing the road bed <a href="#">E02D</a>, <a href="#">E02F</a>)</u></b>	
		<b>19/00</b>	<b>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 <a href="#">E01C 21/00</a>; apparatus specially adapted for reconditioning or repairing paving <a href="#">E01C 23/00</a>)</b>
		19/002	. {Apparatus for preparing and placing the materials and for consolidating or finishing the paving}
		19/004	. {Devices for guiding or controlling the machines along a predetermined path (for graders or bulldozers <a href="#">E02F 3/841</a> ; for other soil-shifting machines <a href="#">E02F 9/2045</a> )}

- 19/006 . . {by laser or ultrasound}
- 19/008 . . {by reference lines placed along the road, e.g. wires co-operating with feeler elements ([E01C 19/006](#) takes precedence)}
- 19/02 . . 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](#) - [B28C 9/00](#))}
- 19/025 . . {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}
- 19/05 . . 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}
- 19/08 . . 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](#))
- 19/10 . . Apparatus or plants 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)}
- 19/1004 . . . {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)}
- 19/1009 . . . {Plant wherein type or construction of the mixer are irrelevant ([E01C 19/1004](#) takes precedence)}
- 19/1013 . . . {Plant characterised by the mode of operation or the construction of the mixing apparatus; Mixing apparatus; ([E01C 19/1004](#), [E01C 19/1054](#) take precedence)}
- 19/1018 . . . . {Coating the solid ingredients by immersion in a bath of binder}
- 19/1022 . . . . {Coating the solid ingredients by passing same through a shower or cloud of binder ([E01C 19/21](#), [E01C 19/4813](#) take precedence)}
- 19/1027 . . . . {Mixing in a rotary receptacle}
- 19/1031 . . . . . {the mixture being discharged continuously ([E01C 19/1036](#) takes precedence)}
- 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}
- 19/104 . . . . . {Mixing by means of movable members in a non-rotating mixing enclosure, e.g. stirrers ([E01C 19/08](#) takes precedence)}
- 19/1045 . . . . . {the mixture being discharged continuously}
- 19/105 . . . . . {Mixing or coating by a combination of methods covered by [E01C 19/1018](#) - [E01C 19/104](#), excluding [E01C 19/1036](#)}
- 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](#))}
- 19/1059 . . . . {Controlling the operations; Devices solely for supplying or proportioning the ingredients}
- 19/1063 . . . . . {Controlling the operations ([E01C 19/1068](#) takes precedence)}
- 19/1068 . . . . . {Supplying or proportioning the ingredients}
- 19/1072 . . . . . {the solid ingredients}
- 19/1077 . . . . . {the liquid ingredients}
- 2019/1081 . . . . {Details not otherwise provided for}
- 2019/1086 . . . . . {Mixing containers having concentric drums}
- 2019/109 . . . . . {Mixing containers having a counter flow drum, i.e. the flow of material is opposite to the gas flow}
- 2019/1095 . . . . . {Mixing containers having a parallel flow drum, i.e. the flow of material is parallel to the gas flow}
- 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](#))}
- 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](#))}
- 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](#))}
- 19/17 . . . . Application by spraying {or throwing}
- 19/172 . . . . . {Apparatus with discharge by surpressure in tank}
- 19/174 . . . . . {Apparatus with pump-discharge}
- 19/176 . . . . . {Spraying or throwing elements, e.g. nozzles; Arrangement thereof or supporting structures therefor, e.g. spray-bars}
- 19/178 . . . . . {Elements or attachments for spreading-out or smoothing-down the applied material, e.g. brushes}
- 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 installations for concrete or the like [B65G](#))}

- 19/182 . . . {solely for depositing}
- 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](#))}
- 19/187 . . . {solely for spreading-out or striking-off deposited mixtures, e.g. spread-out screws, strike-off boards}
- 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](#))}
- 19/2005 . . . {without driven loosening, discharging or spreading ([E01C 19/205](#) takes precedence)}
- 19/201 . . . {with driven loosening, discharging or spreading parts, e.g. power-driven, drive derived from road-wheels ([E01C 19/205](#) takes precedence)}
- 19/2015 . . . . {solely reciprocating, swinging to-and-fro, jolting or vibrating, e.g. oscillating stirrers, shaking spreading shoots}
- 19/202 . . . . {solely rotating, e.g. discharging and spreading drums}
- 19/2025 . . . . {Throwers with substantially horizontal axis, e.g. drums or brushes rotated to fling the material at the surface}
- 19/203 . . . . {Centrifugal spreaders with substantially vertical axis}
- 19/2035 . . . . {both rotating parts and reciprocating, oscillating, jolting or vibrating parts}
- 19/204 . . . . {Throwers or centrifugal spreaders, e.g. spinner spreader with oscillating stirrer}
- 19/2045 . . . . {spreading by means of an endless belt or like conveyor}
- 19/205 . . . {the material being spread by means of a gaseous current}
- 2019/2055 . . . {Details not otherwise provided for}
- 2019/206 . . . . {Hand operated spreading devices}
- 2019/2065 . . . . {Sensing the quantity of the material actually being distributed}
- 2019/207 . . . . {Feeding the distribution means}
- 2019/2075 . . . . {with longitudinal conveyor belt}
- 2019/208 . . . . {with longitudinal auger}
- 2019/2085 . . . . {with transverse conveyor belt}
- 2019/209 . . . . {with transverse auger}
- 2019/2095 . . . . {by tipping}
- 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)
- 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](#))
- 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 20/35](#); making or maintaining surfaces of snow or ice [E01H 4/00](#); solely for soil compaction [E02D 3/026](#))
- 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](#))}
- 19/233 . . . . {the rigid rolling elements being vibrated or subjected to impacts (with vibrated elastically-deformable rolling elements [E01C 19/287](#))}
- 19/235 . . . {Rolling apparatus designed to roll following a path other than essentially linear, e.g. epicycloidal}
- 19/236 . . . {Construction of the rolling elements, e.g. surface configuration, rolling surface formed by endless track}
- 19/238 . . . {Wetting, cleaning or heating rolling elements, e.g. oiling, wiping, scraping}
- 19/24 . . . hand propelled ([E01C 19/235](#), [E01C 19/27](#) - [E01C 19/29](#), [E01C 19/41](#) take precedence)
- 19/25 . . . propelled by animals or vehicles ([E01C 19/235](#), [E01C 19/26](#) - [E01C 19/29](#) take precedence)
- 19/255 . . . . {by vehicles placed on the rolling device; provided with means for facilitating rapid road transport, e.g. retractable transport wheels}
- 19/26 . . . self-propelled or fitted to road vehicles ([E01C 19/231](#), [E01C 19/235](#), [E01C 19/27](#) - [E01C 19/29](#) take precedence)
- 19/262 . . . . {pedestrian-controlled, e.g. with safety arrangements for operator}
- 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](#))}
- 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}
- 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](#))}

- 19/27 . . . with elastically-deformable rolling elements, e.g. pneumatic tyres ([E01C 19/231](#) takes precedence) ; vibrating or impacting [E01C 19/28](#))
- 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](#)})
- 19/281 . . . . {propelled by hand or by vehicles, e.g. towed ([E01C 19/285](#) - [E01C 19/288](#) take precedence)}
- 19/282 . . . . {self-propelled, e.g. with an own traction-unit ([E01C 19/285](#) - [E01C 19/288](#) take precedence)}
- 19/283 . . . . . {pedestrian-controlled, e.g. with safety arrangements for operator}
- 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}
- 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)}
- 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](#))}
- 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}
- 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}
- 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](#))
- 19/32 . . . Hand-held hand-actuated rammers or tampers
- 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}
- 19/35 . . . . Hand-held or hand-guided tools ([E01C 19/36](#) - [E01C 19/40](#) take precedence)
- 19/36 . . . . with direct-acting explosion chambers
- 19/38 . . . . with means specifically for generating vibrations {, e.g. vibrating plate compactors, immersion vibrators ([E01C 19/40](#), [E01C 19/41](#) take precedence)}
- 19/40 . . . . adapted to impart a smooth finish to the paving, e.g. tamping or vibrating finishers
- NOTE**
- When classifying in group [E01C 19/402](#), classification is also made in groups [E01C 19/405](#) or [E01C 19/407](#) if of interest
- 19/402 . . . . . {the tools being hand-guided}
- 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)}
- 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}
- 19/41 . . Apparatus having both rolling tools and ramming, tamping, or vibrating tools
- 19/42 . . Machines for imparting a smooth finish to freshly-laid paving courses other than by rolling, tamping or vibrating (for distributing only [E01C 19/12](#); {hand-actuated smoothing tools [E01C 19/44](#)})
- 19/43 . . Machines or arrangements for roughening or patterning freshly-laid paving courses, e.g. indenting rollers
- 19/44 . . Hand-actuated tools other than rollers, tampers, or vibrators, specially adapted for imparting a required finish to freshly-laid paving courses ([E01C 19/43](#), [E01C 23/02](#) take precedence)
- 19/45 . . Portable apparatus for preparing, or for preparing and applying to the road, compound liquid binders, e.g. emulsified bitumen, fluxed asphalt (applying only [E01C 19/16](#))
- 19/46 . . for preparing and placing the materials {, e.g. slurry seals} ([E01C 19/002](#), [E01C 19/45](#), [E01C 21/00](#), [E01C 23/065](#) take precedence)

- 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}
- 19/466 . . {Solid materials, e.g. crushing same}
- 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](#))
- 19/475 . . . {Distributing means therefor, e.g. boom-and-bucket arrangements}
- 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](#))}
- 19/4806 . . {with solely rollers for consolidating or finishing ([E01C 19/4886](#) takes precedence; combined with other consolidating or finishing means [E01C 19/488](#))}
- 19/4813 . . . {the materials being simultaneously but separately applied binders and granular or pulverulent material (such application per se [E01C 19/21](#))}
- 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](#))}
- 19/4826 . . . {the materials being aggregate mixed with binders (distributing per se [E01C 19/18](#))}
- 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](#))}
- 19/484 . . . {Rail- or like-borne apparatus, e.g. sliding on side forms, rolling on form rails, kerbs or like trackways}
- 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}
- 19/4853 . . . {Apparatus designed for railless operation, e.g. crawler-mounted, provided with portable trackway arrangements}
- 19/486 . . . . {with non-vibratory or non-percussive pressing or smoothing means; with supplemental elements penetrating the paving to work the material thereof}
- 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](#))}
- 19/4873 . . . {Apparatus designed for railless operation}
- 19/488 . . {with rollers for consolidating or finishing combined with tamping, vibrating, pressing or smoothing consolidation or finishing means ([E01C 19/4886](#) takes precedence)}
- 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](#))}
- 19/4893 . . . {Apparatus designed for railless operation}
- 19/50 . . Removable forms or shutterings for road-building purposes ([E01C 23/02](#), [E01C 23/04](#) take precedence; permanent forms [E01C 3/00](#) - [E01C 7/00](#), [E01C 9/00](#) - [E01C 17/00](#)) ; slip forms ([E01C 19/48](#)); Devices or arrangements for forming individual paving elements, e.g. kerbs, *in situ*
- 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](#))}
- 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](#))}
- 19/506 . . . {for kerbs, gutters or similar structures, e.g. raised portions, median barriers}
- 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](#))}
- 19/52 . . Apparatus for laying individual preformed surfacing elements, e.g. kerbstones
- 19/522 . . {Apparatus for laying the elements by rolling or unfolding, e.g. for temporary pavings}
- 19/524 . . {using suction devices}
- 19/526 . . {hand operated ([E01C 19/524](#) takes precedence)}
- 19/528 . . . {with wheels}
- 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](#))
- 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](#))}
- 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](#))



- 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](#))
- 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](#))
- 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](#))}
- 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)}
- 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)}
- 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)}
- 23/028 . . {Positioning or producing markings, e.g. by forcing marking materials into the surface, by scoring}
- 23/03 . . Arrangements for curing paving; Devices for applying curing means; Devices for laying prefabricated underlay, e.g. sheets, membranes (reinforcing elements [E01C 23/04](#)); Protecting paving under construction or while curing, e.g. use of tents (road barriers [E01F 13/00](#))
- 23/04 . . Devices for laying {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 supports 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
- 23/045 . . {Removable, e.g. reusable supports for positioning reinforcing or load transfer elements, adapted or not to also hold joint bodies}
- 23/05 . . Devices for installing or removing forms
- 23/06 . . Devices or arrangements for working the finished surface (working freshly laid paving [E01C 19/42](#) - [E01C 19/44](#), [E01C 23/02](#); mining picks [E21C 35/18](#)); Devices for repairing {or reconditioning} the surface of damaged paving; {Recycling in place or on the road}
- 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](#))}
- 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](#)))
- 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](#))
- 23/081 . . . {by thermal or cryogenic treatment, excluding heating to facilitate mechanical working}
- 23/082 . . . using non-powered tools
- 23/0825 . . . . {rotary, e.g. gang discs}
- 23/085 . . . using power-driven tools, e.g. vibratory tools
- 23/0855 . . . . {moved rectilinearly, e.g. scabblers}
- 23/088 . . . . Rotary tools, e.g. milling drums {(for forming recesses to receive marking materials [E01C 23/0946](#))}
- 23/0885 . . . . . {with vertical or steeply inclined rotary axis}
- 23/09 . . for forming cuts, grooves, or recesses, e.g. for making joints or channels for markings, for cutting-out sections to be removed; for cleaning, treating, or filling cuts, grooves, recesses, or fissures; for trimming paving edges
- 23/0906 . . . {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}
- 23/0913 . . . . . {with non-powered tools, e.g. trailed router blade}
- 23/092 . . . . . {rotary, e.g. edge trimmer disc}
- 23/0926 . . . . . {with power-driven tools, e.g. vibrated, percussive cutters}
- 23/0933 . . . . . {rotary, e.g. circular-saw joint cutters}
- 23/094 . . . . . {about vertical or inclined axes, e.g. for core sampling ([E01C 23/0946](#) takes precedence)}
- 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](#))}
- 23/0953 . . . . . {by thermal effect, e.g. cutting by melting, cleaning drying or heating with hot jets}
- 23/096 . . . {for forming, opening-out, cleaning, drying or heating and filling ([E01C 23/0993](#) takes precedence)}

- 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)}
- 23/0973 . . . . {with liquid or semi-liquid materials, e.g. crack sealants}
- 23/098 . . . . . {and working the surface of the filling or applying particulate material thereto, e.g. smoothing, gritting}
- 23/0986 . . . . . {with preformed elements, e.g. joint strips}
- 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)}
- 23/10 . . . for raising or levelling sunken paving; for filling voids under paving; for introducing material into substructure ([consolidating soil in general E02D 3/12](#))
- 23/12 . . . for taking-up, tearing-up, or {full-depth} breaking-up paving, {e.g. sett extractor} ([adapted to both placing and removing {preformed} paving {elements} E01C 19/52](#))
- 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](#))}
- 23/122 . . . . {with power-driven tools, e.g. oscillated hammer apparatus ([hand-held breakers: percussion tools B25D](#))}
- 23/124 . . . . . {moved rectilinearly, e.g. road-breaker apparatus with reciprocating tools, with drop-hammers}
- 23/125 . . . . . {with direct-acting explosion chambers, i.e. Diesel breakers}
- 23/127 . . . . . {rotary, e.g. rotary hammers}
- 23/128 . . . . {with hydrojets ([hydraulic cleaning E01H 1/101](#))}
- 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](#))
- 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 9/50](#)); Protecting fresh markings
- 23/163 . . . {for marking-out the location of the markings; Guiding or steering devices for marking apparatus, e.g. sights}
- 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}
- 23/18 . . . for applying prefabricated markings
- 23/185 . . . . {Tape- or sheet-shape markers or carriers}
- 23/20 . . . for forming markings [in situ](#)
- 23/203 . . . . {the marking material being applied to the surface by contact with an application tool, e.g. paint roller}
- 23/206 . . . . {by applying fusible particulate material to the surface, e.g. by means of a gaseous stream}
- 23/22 . . . . by spraying ([E01C 23/206](#) takes precedence)}
- 23/222 . . . . . {specially adapted for automatic spraying of interrupted, individual or variable markings}
- 23/225 . . . . . {comprising means for mechanically working the applied material, e.g. smoothing brushes}
- 23/227 . . . . . {the marking material being supplied in aerosol containers}
- 23/24 . . . . by pouring
- 23/243 . . . . . {specially adapted for automatic pouring of interrupted, individual or variable markings}
- 23/246 . . . . . {comprising means for mechanically working the applied material, e.g. smoothing brushes}
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- 2201/00 Paving elements**
- 2201/02 . . . having fixed spacing features
- 2201/04 . . . consisting of natural stones and a binder
- 2201/06 . . . Sets of paving elements
- 2201/065 . . . specially for coverings around manhole-shafts or the like
- 2201/08 . . . having direction indicating means
- 2201/10 . . . having build-in shock absorbing devices
- 2201/12 . . . vertically interlocking
- 2201/14 . . . Puzzle-like connections
- 2201/16 . . . Elements joined together
- 2201/162 . . . with breaking lines
- 2201/165 . . . with spots of glue
- 2201/167 . . . by reinforcement or mesh
- 2201/18 . . . Elements representing text
- 2201/20 . . . Drainage details
- 2201/202 . . . Horizontal drainage channels
- 2201/205 . . . channels on the top
- 2201/207 . . . channels on the bottom
- 2301/00 Machine characteristics, parts or accessories not otherwise provided for**
- 2301/02 . . . Feeding devices for pavers
- 2301/04 . . . Independent shuttles
- 2301/06 . . . Windrow pickup
- 2301/08 . . . Pushing devices for lorries
- 2301/10 . . . Heated screeds
- 2301/14 . . . Extendable screeds
- 2301/16 . . . Laterally slidable screeds
- 2301/18 . . . the whole machine being laterally slidable
- 2301/20 . . . Screed or paver accessories for paving joint or edge treatment
- 2301/30 . . . Cabin details
- 2301/40 . . . Working platform or walkway
- 2301/50 . . . Methods or devices for preventing dust by spraying or sucking