International Patent Classification

Core Level (2010.01)

Volume 3
Section E
Fixed constructions

World Intellectual Property Organization
SECTION E — FIXED CONSTRUCTIONS

BUILDING

E01 CONSTRUCTION OF ROADS, RAILWAYS, OR BRIDGES .................................................. 5
  E01B Permanent way; Permanent-way tools; Machines for making railways of all kinds ........................................... 5
  E01C Construction of, or surfaces for, roads, sports grounds, or the like; Machines or auxiliary tools for construction or repair ................................................................. 6
  E01D Bridges .......................................................................................................................... 6
  E01F Additional work, such as equipping roads or the construction of platforms, helicopter landing stages, signs, snow fences, or the like ............................................. 7
  E01H Street cleaning; Cleaning of permanent ways; Cleaning beaches; Cleaning land; Dispersing fog in general .................................................. 8

E02 HYDRAULIC ENGINEERING; FOUNDATIONS; SOIL-SHIFTING ........................................ 9
  E02B Hydraulic engineering .................................................................................................... 9
  E02C Ship-lifting devices or mechanisms ............................................................................. 10
  E02D Foundations; Excavations; Embankments; Underground or underwater structures .................................................. 10
  E02F Dredging; Soil-shifting .................................................................................................. 11

E03 WATER SUPPLY; SEWERAGE ................................................................................. 13
  E03B Installations or methods for obtaining, collecting, or distributing water .......................................................... 13
  E03C Domestic plumbing installations for fresh water or waste water; Sinks .......................................................... 13
  E03D Water-closets or urinals with flushing devices; Flushing valves therefor .................................................. 13
  E03F Sewers; Cesspools ......................................................................................................... 14

E04 BUILDING .................................................................................................................... 15
  E04B General building constructions; Walls, e.g. partitions; Roofs; Floors; Ceilings; Insulation or other protection of buildings .......................................................... 15
  E04C Structural elements; Building materials ...................................................................... 17
  E04D Roof coverings; Sky-lights; Gutters; Roof-working tools ........................................... 18
  E04F Finishing work on buildings, e.g. stairs, floors .............................................................. 19

  E04G Scaffolding; Forms; Shuttering; Building implements or other building aids, or their use; Handling building materials on the site; Repairing, breaking-up or other work on existing buildings ........................................... 20
  E04H Buildings or like structures for particular purposes; Swimming or splash baths or pools; Masts; Fencing; Tents or canopies, in general ............................................. 22

E05 LOCKS; KEYS; WINDOW OR DOOR FITTINGS; SAFES ........................................ 24
  E05B Locks; Accessories therefor; Handcuffs ........................................................................ 24
  E05C Bolts or fastening devices for wings, specially for doors or windows ............................................. 25
  E05D Hinges or other suspension devices for doors, windows, or wings ............................................. 26
  E05F Devices for moving wings into open or closed position; Checks for wings; Wing fittings not otherwise provided for, concerned with the functioning of the wing ............................................. 27
  E05G Safes or strong-rooms for valuables; Bank protection devices; Safety transaction partitions ............................................. 27

E06 DOORS, WINDOWS, SHUTTERS, OR ROLLER BLINDS, IN GENERAL; LADDERS ............. 29
  E06B Fixed or movable closures for openings in buildings, vehicles, fences, or like enclosures, in general, e.g. doors, windows, blinds, gates .................................................. 29
  E06C Ladders ....................................................................................................................... 30

  EARTH OR ROCK DRILLING; MINING

E21 EARTH OR ROCK DRILLING; MINING ................................................................. 31
  E21B Earth or rock drilling; Obtaining oil, gas, water, soluble or meltable materials or a slurry of minerals from wells .......................................................... 31
  E21C Mining or quarrying ...................................................................................................... 33
  E21D Shafts; Tunnels; Galleries; Large underground chambers .................................................. 34
  E21F Safety devices, transport, filling-up, rescue, ventilation, or drainage in or of mines or tunnels ............................................. 35
SUBJECT MATTER NOT OTHERWISE PROVIDED FOR IN THIS SECTION ........................36

Subject matter not otherwise provided for in this section.........................................................36
SECTION E - FIXED CONSTRUCTIONS

BUILDING

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

E01B PERMANENT WAY; PERMANENT-WAY TOOLS; MACHINES FOR MAKING RAILWAYS OF ALL KINDS (derailing or rerailing blocks on track, track brakes or retarders B61K; removal of foreign matter from the permanent way, vegetation control, applying liquids E01H)

Subclass index
STRUCTURE OF THE PERMANENT WAY

<table>
<thead>
<tr>
<th>Subclass</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2/00</td>
<td>General structure ........................................................ 2/00</td>
</tr>
<tr>
<td>3/00</td>
<td>Transverse or longitudinal sleepers (for switches or crossings E01B 7/00); Other means resting directly on the ballastway for supporting rails</td>
</tr>
<tr>
<td>5/00</td>
<td>Rails; Guard rails (manufacture of rails B21B); Distance-keeping means for them</td>
</tr>
<tr>
<td>7/00</td>
<td>Switches; Crossings (operating mechanisms B61L)</td>
</tr>
<tr>
<td>9/00</td>
<td>Fastening rails on sleepers, or the like (fastening rails to bridges E01D 19/12)</td>
</tr>
<tr>
<td>11/00</td>
<td>Rail joints (electrical connection of rails B60M 5/00)</td>
</tr>
<tr>
<td>13/00</td>
<td>Arrangements preventing shifting of the track</td>
</tr>
<tr>
<td>15/00</td>
<td>Guards for preventing a person's foot being trapped in grooved rails</td>
</tr>
<tr>
<td>17/00</td>
<td>Cattle guards connected to the permanent way (grids in general for preventing cattle from straying A01K 3/00)</td>
</tr>
<tr>
<td>19/00</td>
<td>Protection of permanent way against development of dust or against the effect of wind, sun, frost, or corrosion; Means to reduce development of noise (snow fences E01F 7/00; snow-ploughs E01H 8/00; watering E01H 11/00)</td>
</tr>
<tr>
<td>21/00</td>
<td>Track superstructure specially adapted for tramways in paved streets (paving E01C 9/00)</td>
</tr>
<tr>
<td>23/00</td>
<td>Easily dismountable or movable tracks, e.g. temporary railways; Details specially adapted therefor</td>
</tr>
<tr>
<td>25/00</td>
<td>Tracks for special kinds of railways (systems B61B; wheel tracks on roads E01C 9/00)</td>
</tr>
<tr>
<td>26/00</td>
<td>Tracks or track components not covered by any one of main groups E01B 1/00 to E01B 25/00</td>
</tr>
</tbody>
</table>

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

Making, maintaining, renewing, or taking-up the ballastway or the track: Tools or machines specially designed therefor

<table>
<thead>
<tr>
<th>Subclass</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>27/00</td>
<td>Placing, renewing, working, cleaning, or taking-up the ballast, with or without concurrent work on the track; Devices therefor; Packing sleepers</td>
</tr>
<tr>
<td>29/00</td>
<td>Laying, rebuilding, or taking-up tracks; Tools or machines therefor (E01B 27/00, E01B 31/00 take precedence)</td>
</tr>
<tr>
<td>31/00</td>
<td>Working rails, sleepers, baseplates, or the like, in or on the line; Machines, tools, or auxiliary devices specially designed therefor (characterised by features independent of use on assembled track B21, B23 to B25, B27)</td>
</tr>
<tr>
<td>33/00</td>
<td>Machines or devices for shifting tracks, with or without lifting, e.g. for aligning track, for shifting excavator track (combined with sleeper packing machines E01B 27/00)</td>
</tr>
<tr>
<td>35/00</td>
<td>Applications of measuring apparatus or devices for track-building purposes (apparatus on locomotives or cars to indicate or record bad track sections B61K 9/00; measuring angles, linear dimensions, or irregularities in general G01B, G01C)</td>
</tr>
<tr>
<td>37/00</td>
<td>Making, maintaining, renewing, or taking-up the ballastway or the track, not provided for in a single one of groups E01B 27/00 to E01B 35/00</td>
</tr>
</tbody>
</table>

(2010.01)
E01C  CONSTRUCTION OF, OR SURFACES FOR, ROADS, SPORTS GROUNDS, OR THE LIKE; MACHINES OR AUXILIARY TOOLS FOR CONSTRUCTION OR REPAIR (forming road or like surfaces by compacting or grading snow or ice E01H)

Subclass index

<table>
<thead>
<tr>
<th>DESIGN; FOUNDATIONS</th>
<th>1/00; 3/00, 13/00</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAVING FOR ROADS, PLAYGROUNDS, OR THE LIKE</td>
<td>Special paving 9/00, 13/00, 15/00</td>
</tr>
<tr>
<td>Paving in general 5/00, 7/00</td>
<td>Details 11/00, 17/00</td>
</tr>
</tbody>
</table>

1/00 Design or layout of roads, e.g. for noise abatement, for gas absorption (design or layout of sports grounds A63C 19/00; design or layout of airfields B64F)

Structure of roads, playgrounds, sports grounds, airfields

3/00 Foundations for pavings (specially adapted for playgrounds or sports grounds E01C 13/00; foundations in general E02D)

5/00 Pavings made of prefabricated single units (specially adapted for playgrounds or sports grounds E01C 13/00, for footpaths, sidewalks or cycle tracks E01C 15/00; making artificial stones C04B; building stones E04C; flooring E04F)

5/04 made of bricks
5/06 made of units with cement or like binders
5/12 made of units with bituminous binders

7/00 Coherent pavings made in situ (specially adapted for playgrounds or sports grounds E01C 13/00, for footpaths, sidewalks or cycle tracks E01C 15/00; making dispersions or emulsions for road building C04B)

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)

11/00 Details of pavings (kerbs for informing road users E01F 9/04)

11/02 Arrangement or construction of joints; Methods of making joints; Packing for joints (sealing joints not restricted to road or airfield paving E04B 1/68)

11/24 Methods or arrangements for preventing slipperiness or protecting against influences of the weather

13/00 Pavings or foundations specially adapted for playgrounds or sports grounds (general layout A63C 19/00)

13/08 Surfaces simulating grass [6]

15/00 Pavings specially adapted for footpaths, sidewalks, or cycle tracks

17/00 Pavement lights, i.e. translucent constructions forming part of the surface (blocks specially designed for marking roads E01F 9/04)

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

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

19/02 for preparing the materials
19/22 for consolidating or finishing laid-down unset materials (E01C 23/00 takes precedence; apparatus for generating vibrations in general B06B)

21/00 Apparatus or processes for surface stabilisation for road building or like purposes, e.g. mixing borrowed aggregate with binder (stabilising soil under existing surfacing E01C 23/00; soil-conditioning or soil-stabilising materials C09K 17/00; soil-consolidation in general E02D 3/00)

23/00 Auxiliary devices or arrangements for constructing, repairing, reconditioning, or taking-up road or like surfaces (apparatus for reconditioning of salvaged non-hydraulic compositions E01C 19/02)

E01D  BRIDGES (bridges extending between terminal buildings and aircraft for embarking or disembarking passengers B64F 1/00)

Subclass index

<table>
<thead>
<tr>
<th>BRIDGES IN GENERAL</th>
<th>1/00</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRIDGES CHARACTERISED BY THE CROSS-SECTION OF THEIR BEARING SPANNING STRUCTURE</td>
<td>ERECTING OR ASSEMBLING BRIDGES 21/00</td>
</tr>
<tr>
<td>BRIDGES CHARACTERISED BY THEIR STRUCTURAL TYPE 4/00 to 15/00</td>
<td></td>
</tr>
<tr>
<td>BRIDGES CHARACTERISED BY THEIR FUNCTION</td>
<td>REPAIRING OR STRENGTHENING 22/00</td>
</tr>
<tr>
<td>DETAILS</td>
<td>DISMANTLING BRIDGES 24/00</td>
</tr>
</tbody>
</table>

(2010.01)
1/00 Bridges in general (characterised by their structural type E01D 4/00 to E01D 15/00) [6]

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

4/00 Arch-type bridges [6]

6/00 Truss-type bridges [6]

11/00 Suspension or cable-stayed bridges [6]

12/00 Bridges characterised by a combination of structures not covered as a whole by a single one of groups E01D 2/00 to E01D 11/00 [6]

15/00 Movable or portable bridges (arrangement of ship-based outboard ramps or gangways B63B 27/00; loading ramps B65G 69/00); Floating bridges (floating bodies or pontoons B63B)

18/00 Bridges specially adapted for particular applications or functions not provided for elsewhere, e.g. aqueducts, bridges for supporting pipe-lines [6]

19/00 Details of bridges

19/02 . Piers; Abutments (foundations E02D)

19/04 . Bearings; Hinges

19/12 . Grating or flooring for bridges; Fastening railway sleepers or tracks to bridges

21/00 Methods or apparatus specially adapted for erecting or assembling bridges [6]

22/00 Methods or apparatus for repairing or strengthening existing bridges [6]

24/00 Methods or apparatus for dismantling bridges [8]

---

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

**Subclass index**

<table>
<thead>
<tr>
<th>Arrangement or construction of additional equipment for roads or railways</th>
<th>Landings stages for helicopters</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARRANGEMENTS FOR ROADS OR RAILWAYS ................................................................. 1/00, 5/00 to 8/00</td>
<td>THE USE OF ROADS ................................................................. 9/00 to 15/00</td>
</tr>
<tr>
<td>LANDING STAGES FOR HELICOPTERS ................................................................. 3/00</td>
<td></td>
</tr>
</tbody>
</table>

**Arrangements for facilitating the use of roads**

| 9/00 | Arrangement of road signs or traffic signals (signals, signalling systems G08; signs, attachment thereof to supports G09F); Arrangements for enforcing caution, e.g. speed bumps [6] |
| 9/01 | . Upright bodies, e.g. marker posts or bollards; Supports for road signs (posts or poles in general E04H 12/00; mean for attaching signs to a supporting structure in general G09F 7/18) [6] |
| 9/04 | . Road surface markings; Kerbs or road edgings, specially adapted for informing road users, e.g. illuminated (for redirecting vehicles E01F 15/00) [6] |
| 11/00 | Embedding pads or other sensitive devices in paving or other road surfaces (pressure-sensitive elements G01L; traffic control systems G08G) |
| 13/00 | Arrangements for obstructing or restricting traffic, e.g. gates, barricades (for railway crossings B61L) |
| 15/00 | Safety arrangements for slowing, redirecting or stopping errant vehicles, e.g. guard posts or bollards; Arrangements for reducing damage to roadside structures due to vehicular impact (arrangements for fastening signs or signals to safety barriers or the like E01F 9/011; for forcibly arresting vehicles E01F 13/00) [6] |
| 15/02 | . Continuous barriers extending along roads or between traffic lanes (crossable-lane separators E01F 9/04) [6] |
2010.01

**E01H STREET CLEANING; CLEANING OF PERMANENT WAYS; CLEANING BEACHES; CLEANING LAND; DISPERSING FOG IN GENERAL** (mowers convertible to apparatus for sweeping or cleaning lawns or other surfaces, e.g. to remove snow, or capable of sweeping or cleaning lawns or other surfaces A01D 42/00; cleaning in general B08B)  [4]

<table>
<thead>
<tr>
<th>Subclass index</th>
<th>STREET CLEANING</th>
<th>MAKING OR MAINTAINING SURFACES OF SNOW OR ICE; IMPROVING GRIPPING POWER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/00</td>
<td>Removing undesirable matter from roads or like surfaces, with or without moistening of the surface (for snow or ice E01H 5/00; cleaning tramway rails E01H 8/00; obstruction-removers on vehicles B60R 19/00; in combination with application of bitumen or the like E01C 19/00; in combination with application of traffic lines E01C 23/00)</td>
<td></td>
</tr>
<tr>
<td>3/00</td>
<td>Applying liquids to roads or like surfaces, e.g. for dust control; Stationary flushing devices (combined with removal of undesirable matter E01H 1/00; spray heads, other outlets B05B)</td>
<td></td>
</tr>
<tr>
<td>4/00</td>
<td>Working on surfaces of snow or ice in order to make them suitable for traffic or sporting purposes, e.g. by compacting snow (production of artificial snow F25C 3/00)  [4]</td>
<td></td>
</tr>
<tr>
<td>5/00</td>
<td>Removing snow or ice from roads or like surfaces; Grading or roughening snow or ice (by applying de-icing agents E01H 10/00; obstruction-removers on vehicles B60R 19/00; sand, gravel or salt spreaders E01C 19/00)  [4]</td>
<td></td>
</tr>
<tr>
<td>5/04</td>
<td>Apparatus propelled by animal or engine power; Apparatus propelled by hand with driven dislodging or conveying elements, e.g. conveying pneumatically (E01H 5/10, E01H 5/12 take precedence)</td>
<td></td>
</tr>
<tr>
<td>5/10</td>
<td>by application of heat (stationary blowing or paving-heating means E01C 11/24)</td>
<td></td>
</tr>
<tr>
<td>5/12</td>
<td>Apparatus or implements specially adapted for breaking, disintegrating, or loosening layers of ice or hard snow</td>
<td></td>
</tr>
<tr>
<td>6/00</td>
<td>Apparatus equipped with, or having provisions for equipping with, both elements for removal of refuse or the like and elements for removal of snow or ice (E01H 8/00 takes precedence)</td>
<td></td>
</tr>
<tr>
<td>8/00</td>
<td>Removing undesirable matter from the permanent way of railways; Removing undesirable matter from tramway rails (E01H 1/00 to E01H 6/00 take precedence)</td>
<td></td>
</tr>
<tr>
<td>10/00</td>
<td>Improving gripping of ice-bound or other slippery traffic surfaces, e.g. using gritting or thawing materials (roughening ice by means of tools E01H 5/12; applying de-icing agents to rails E01H 8/00; thawing materials C09K 3/18; by constructional features E01C 11/24)</td>
<td></td>
</tr>
<tr>
<td>11/00</td>
<td>Control of undesirable vegetation on roads or permanent ways of railways (destruction of undesirable vegetation in general A01M 7/00 to A01M 15/00, A01M 21/00; weeding involving working the ballast E01B 27/00); Applying liquids, e.g. water, weed-killer, bitumen, to permanent ways (special to rails E01H 8/00; for preserving sleepers E01B 31/00)</td>
<td></td>
</tr>
<tr>
<td>12/00</td>
<td>Cleaning beaches</td>
<td></td>
</tr>
<tr>
<td>13/00</td>
<td>Dispersing fog in general, e.g. on roads, on airfields</td>
<td></td>
</tr>
<tr>
<td>15/00</td>
<td>Removing undesirable matter, e.g. rubbish, from the land, not otherwise provided for (gatherers for removing stones, roots or the like from the soil A01B 43/00)  [4]</td>
<td></td>
</tr>
</tbody>
</table>
### E02B HYDRAULIC ENGINEERING (ship-lifting E02C; dredging E02F)

#### Subclass index

<table>
<thead>
<tr>
<th>CLASS</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/00</td>
<td>Equipment or apparatus for, or methods of, general hydraulic engineering</td>
</tr>
<tr>
<td>3/00</td>
<td>Engineering work in connection with control or use of streams, rivers, coasts, or other marine sites (barrages or weirs E02B 7/00); Sealings or joints for engineering work in general</td>
</tr>
<tr>
<td>3/04</td>
<td>Structures or apparatus for, or methods of, protecting banks, coasts, or harbours (sealings or joints E02B 3/00)</td>
</tr>
<tr>
<td>3/06</td>
<td>Moles; Piers; Quays; Quay walls; Groynes; Breakwaters</td>
</tr>
<tr>
<td>3/08</td>
<td>Structures of loose stones with or without piles (piles E02D 5/00)</td>
</tr>
<tr>
<td>3/10</td>
<td>Dams; Dykes; Sluice ways or other structures for dykes, dams, or the like (making embankments or dams in general E02D 17/18)</td>
</tr>
<tr>
<td>3/12</td>
<td>Revetment of banks, dams, watercourses, or the like (of slopes in general E02D 17/20)</td>
</tr>
<tr>
<td>3/14</td>
<td>Preformed blocks; Arrangements thereof</td>
</tr>
<tr>
<td>3/20</td>
<td>Equipment for shipping on coasts, in harbours or on other fixed marine structures, e.g. bollards (tying-up, anchoring B63B 21/00, e.g. bollards for shipping B63B 21/00; buoys B63B 22/00) [5]</td>
</tr>
<tr>
<td>5/00</td>
<td>Artificial water canals (for water-power plants E02B 9/00; irrigation of soil E02B 13/00)</td>
</tr>
<tr>
<td>7/00</td>
<td>Barrages or weirs; Layout, construction, methods of, or devices for, making same (for protecting banks, coasts, or harbours E02B 3/04; sealings or joints E02B 3/00; handling building or like materials for hydraulic engineering E02D 15/00; foundations in general E02D 27/00)</td>
</tr>
<tr>
<td>7/02</td>
<td>Fixed barrages</td>
</tr>
<tr>
<td>7/20</td>
<td>Movable barrages; Lock gates</td>
</tr>
<tr>
<td>7/26</td>
<td>Vertical-lift gates</td>
</tr>
<tr>
<td>8/00</td>
<td>Details of barrages or weirs (cleaning or keeping clear the surface of open water E02B 15/00)</td>
</tr>
<tr>
<td>9/00</td>
<td>Water-power plants; Layout, construction or equipment, methods of, or apparatus for, making same (hydraulic motors F03B)</td>
</tr>
<tr>
<td>11/00</td>
<td>Drainage of soil, e.g. for agricultural purposes</td>
</tr>
<tr>
<td>13/00</td>
<td>Irrigation ditches, i.e. gravity flow, open channel water distribution systems (other distribution systems for watering or spraying gardens, fields, sports grounds, or the like A01G 25/00) [2]</td>
</tr>
<tr>
<td>15/00</td>
<td>Cleaning or keeping clear the surface of open water; Apparatus therefor (construction of ships or other waterborne vessels B63B, e.g. vessels specially adapted for collecting pollution from open water B63B 35/32; in swimming or splash baths or pools E04H 4/00) [5]</td>
</tr>
<tr>
<td>15/04</td>
<td>Devices for cleaning or keeping clear the surface of open water from oil or like floating materials by separating or removing these materials (other treatment of water, waste water or sewage C02F; materials for treating liquid pollutants, e.g. oil, gasoline, fat, C09K 3/32)</td>
</tr>
<tr>
<td>17/00</td>
<td>Artificial islands mounted on piles or like supports, e.g. platforms on raisable legs; Construction methods therefor (fenders E02B 3/20; anchoring floating platforms B63B 21/00; floating platforms, e.g. anchored, B63B 35/44; independent underwater structures E02D 29/00) [5]</td>
</tr>
</tbody>
</table>

---

### E02C SHIP-LIFTING DEVICES OR MECHANISMS

<table>
<thead>
<tr>
<th>CLASS</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/00</td>
<td>Locks; Shaft locks, i.e. locks of which one front side is formed by a solid wall with an opening in the lower part through which the ships pass (lock gates E02B 7/20)</td>
</tr>
<tr>
<td>3/00</td>
<td>Inclined-plane ship-lifting mechanisms</td>
</tr>
<tr>
<td>5/00</td>
<td>Mechanisms for lifting ships vertically (salvaging sunken vessels B63C 7/00)</td>
</tr>
</tbody>
</table>
This subclass covers underground structures made by foundation engineering, i.e. involving disturbance of the ground surface. [6]

This subclass does not cover underground spaces, made by underground mining methods only, i.e. not involving disturbance of the ground surface, which are covered by subclass E21D. [6]

**Subclass index**

**INVESTIGATING, IMPROVING OR PRESERVING FOUNDATION SOIL OR ROCK.......................................................... 1/00, 3/00**

**TECHNIQUES THEREFOR**

Structural elements ..................................................... 5/00

Placing; removing; placing and removing; accessories ........................................ 7/00; 9/00; 11/00; 13/00

**HANDLING MATERIALS..........................................................15/00**

---

1/00 Investigation of foundation soil in situ (investigation involving boring or specially adapted to earth drilling E21B 25/00, E21B 49/00; investigating or analysing materials by determining their chemical or physical properties, in general G01N, e.g. sampling G01N 1/00)

3/00 Improving or preserving soil or rock, e.g. preserving permafrost soil (securing of slopes or inclines E02D 17/20; damming or interrupting passage of underground water E02D 19/00; compacting or stressing soil for foundations E02D 27/00; improving soil for agricultural purposes A01; soil-conditioning or soil-stabilising materials C09K 17/00; for consolidating unset paving materials E01C 19/22; soil stabilisation for road building or like purposes E01C 21/00; E01C 23/00; setting rock anchoring bolts E21D)

5/00 Bulkheads, piles, or other structural elements specially adapted to foundation engineering (engineering elements in general F16)

5/02 Sheet piles or sheet pile bulkheads

5/18 Bulkheads or similar walls made solely of concrete in situ

5/22 Piles (sheet piles E02D 5/02)

5/24 Prefabricated piles

5/34 Concrete or concrete-like piles cast in position

5/74 Means for anchoring structural elements or bulkheads (anchoring piles E02D 5/22)

5/80 Ground anchors

7/00 Methods or apparatus for placing sheet pile bulkheads, piles, mould-pipes, or other moulds (for both placing and removing E02D 11/00)

9/00 Removing sheet pile bulkheads, piles, mould-pipes, or other moulds (for both placing and removing E02D 11/00)

11/00 Methods or apparatus for both placing and removing sheet pile bulkheads, piles, or mould-pipes (features relating to placing only E02D 7/00, to removing only E02D 9/00)

13/00 Accessories for placing or removing piles or bulkheads

15/00 Handling building or like materials for hydraulic engineering or foundations (conveying or working-up concrete or similar masses in general E04G 21/02)

17/00 Excavations; Bordering of excavations; Making embankments (soil shifting apparatus E02F; earth drilling E21)

17/02 Foundation pits

17/06 Foundation ditches or narrow shafts

17/18 Making embankments (E02D 17/20 takes precedence)

17/20 Securing of slopes or inclines

19/00 Keeping dry foundation sites or other areas in the ground (sheet piles or bulkheads E02D 5/02; sealings or joints for engineering work E02B 3/00)

23/00 Caissons; Construction or placing of caissons (tunnels submerged into or built in open water E02D 29/063) [6]

25/00 Joining caissons or like sunk units to each other under water

27/00 Foundations as substructures

27/01 Flat foundations

27/02 Flat foundations without substantial excavation (E02D 27/04, E02D 27/08 take precedence)

27/04 Reinforcements for flat foundations

27/10 Deep foundations

27/12 Pile foundations

27/32 Foundations for special purposes (special layout of foundations for machines or engines F16M 9/00)

27/34 Foundations for sinking or earthquake territories (building constructions with protection arrangements against earthquakes E04H 9/02)

29/00 Underground or underwater structures (underground tanks B65D 88/00; hydraulic engineering, e.g. sealings or joints, E02B; underground garages E04H 6/00; underground air-raid shelters E04H 9/04; burial vaults E04H 13/00); Retaining walls [6]

29/02 Retaining or protecting walls (piers or quay walls E02B 3/06)
E02F  DREDGING; SOIL-SHIFTING (winning peat E21C 49/00)

Note
This subclass covers:
− primarily equipment for excavating or loosening earth or for moving loose earth;
− equipment for working similarly on other materials and similar equipment for loading or unloading materials.

Subclass index
GENERAL WORKING METHODS ................................................. 1/00
HAND-OPERATED MACHINES OR APPARATUS FOR GENERAL USE .............................................. 3/02
MECHANICALLY-DRIVEN MACHINES OR APPARATUS FOR GENERAL USE ........................................ 7/02
THEIR SPECIAL DETAILS .................................................. 3/04

1/00  General working methods with dredgers or soil-shifting machines (methods for making embankments E02D 17/18; methods for mining E21C)

3/00  Dredgers; Soil-shifting machines (for special purposes E02F 5/00; other machines or apparatus for mining E21C; tunnelling E21D)

3/02  . hand-operated

3/04  . mechanically-driven

3/08  . with digging elements on an endless chain (conveyers B65G)

3/18  . with digging wheels turning round an axis

3/28  . with digging tools mounted on a dipper- or bucket-arm, e.g. dippers, buckets [4]

3/36  . Component parts


3/42  . Drives for dippers, buckets, dipper-arms or bucket-arms [4]

3/46  . with reciprocating digging or scraping elements moved by cables or hoisting ropes [4]

3/64  . Bucket cars, i.e. having scraper bowls [4]

3/76  . Graders, bulldozers, or the like with scraper plates or ploughshare-like elements (soil working A01B); Levelling devices [4]

3/88  . with arrangements acting by a sucking or forcing effect, e.g. suction dredgers (pumps in general F04)

5/00  Dredgers or soil-shifting machines for special purposes

5/02  . for digging trenches or ditches (agricultural ploughs for working ridges A01B 13/00)

5/10  . with arrangements for reinforcing trenches or ditches; with arrangements for making or assembling conduits or for laying conduits or cables (laying pipes per se F16L 1/00; making pipes in situ F16L 1/028; laying electric cables per se H02G 1/06) [6]

7/00  Equipment for conveying or separating excavated material (barges adapted for carrying-away material from floating dredgers B63B 35/00)

9/00  Component parts of dredgers or soil-shifting machines, not restricted to one of the kinds covered by groups E02F 3/00 to E02F 7/00 (laying-out or take-up devices for trailing electric cables B66C) [3]

9/02  . Travelling gear (for motor vehicles B60B, B60G; undercarriages for locomotives or railroad cars B61F; track-laying vehicles B62D; for cranes B66C)

9/08  . Superstructures; Supports for superstructures

9/14  . Booms; Cable suspensions

9/16  . Cabins, platforms, or the like for the driver (for cranes B66C 13/00)

9/18  . Counterweights

9/20  . Drives; Control devices (gearing in general F16H; controlling in general G05; electric multi-motor drives H02K, H02P)

9/22  . Hydraulic or pneumatic drives
9/24  .  Safety devices
9/26  .  Indicating devices

9/28  .  Small metalwork for digging elements, e.g. teeth
E03B INSTALLATIONS OR METHODS FOR OBTAINING, COLLECTING, OR DISTRIBUTING WATER (drilling wells, obtaining fluids in general from wells E21B; pipe-line systems in general F17D)

Subclass index

<table>
<thead>
<tr>
<th>Layout</th>
<th>Methods</th>
<th>Installations or methods for obtaining or collecting water (drilling wells, obtaining fluids in general from wells E21B; pipe-line systems in general F17D)</th>
<th>Pipe systems; tanks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/00</td>
<td>Methods or layout of installations for water supply (E03B 3/00, E03B 9/00 take precedence)</td>
<td>INSTALLATIONS (domestic plumbing E03C 1/02; devices for preventing contamination of drinking water pipes for domestic use E03C 1/10; pipes or tubes in general F16L)</td>
<td></td>
</tr>
<tr>
<td>3/00</td>
<td>Methods or installations for obtaining or collecting drinking water or tap water (treatment of water C02F)</td>
<td>7/00 WATER main or service pipe systems (domestic plumbing E03C 1/02; devices for preventing contamination of drinking water pipes for domestic use E03C 1/10; pipes or tubes in general F16L)</td>
<td></td>
</tr>
<tr>
<td>5/00</td>
<td>Use of pumping plants or installations, layouts thereof (pumps, pumping plants or installations per se, F04)</td>
<td>9/00 Methods or installations for drawing-off water (domestic water-drawing devices E03C; taps or valves per se F16K)</td>
<td></td>
</tr>
</tbody>
</table>

E03C DOMESTIC PLUMBING INSTALLATIONS FOR FRESH WATER OR WASTE WATER (not connected to either water-supply main or to waste pipe A47K; devices of the kind used in the ground E03B, E03F); SINKS

<table>
<thead>
<tr>
<th>1/00 Domestic plumbing installations for fresh water or waste water; Sinks</th>
<th>1/02 . Plumbing installations for fresh water</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/04 . Water-basin installations specially adapted to wash-basins or baths (valves, faucets, mixing valves, taps F16K)</td>
<td>1/12 . Plumbing installations for waste water; Basins or fountains connected thereto (drainage devices in floors E03F 5/04); Sinks</td>
</tr>
<tr>
<td>1/042 Arrangements on taps for wash-basins or baths for connecting to the wall</td>
<td>1/122 . Pipe-line systems for waste water in buildings (pipe-line systems in general F17D)</td>
</tr>
<tr>
<td>1/05 Arrangements of devices on wash-basins, baths, sinks, or the like, for remote control of taps (remote control of taps or the like, per se F16K)</td>
<td>1/18 . Sinks, whether or not connected to the waste-pipe</td>
</tr>
<tr>
<td>1/06 Devices for suspending or supporting the supply pipe or supply hose of a shower-bath</td>
<td>1/20 . Connecting baths or bidets to the waste pipe</td>
</tr>
<tr>
<td>1/10 Devices for preventing contamination of drinking-water pipes, e.g. means for aerating self-closing flushing valves (vacuum-breakers in general F16K, F16L)</td>
<td>1/22 . Outlet devices mounted in basins, baths, or sinks (stoppers A47K 1/00)</td>
</tr>
<tr>
<td>1/26 . Object-catching inserts or similar devices for waste pipes or outlets (E03C 1/28 takes precedence)</td>
<td>1/28 . Odour seals</td>
</tr>
</tbody>
</table>

E03D WATER-CLOSETS OR URINALS WITH FLUSHING DEVICES; FLUSHING VALVES THEREFOR

Subclass index

<table>
<thead>
<tr>
<th>Water-closets, flushing devices</th>
<th>Accessories, component parts</th>
</tr>
</thead>
<tbody>
<tr>
<td>General structure</td>
<td>ACCESSORIES, COMPONENT PARTS</td>
</tr>
<tr>
<td>Special constructions</td>
<td>..................................</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1/00 Water flushing devices with cisterns</th>
<th>1/24 . Low-level flushing systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/02 . High-level flushing systems</td>
<td>1/30 . Valves for high or low cisterns; Their arrangement (inlet valves, valves in general F16K)</td>
</tr>
</tbody>
</table>

(2010.01)
E03D – E03F

3/00 Flushing devices operated by pressure of the water supply system

5/00 Special constructions of flushing devices (in motor vehicles or trailers B60R 15/00; in railway carriages B61D 35/00; in ships B63B 29/00; in aircraft B64D 11/00)

7/00 Wheeled lavatories (wheeled closets without flushing A47K 11/00; construction of land vehicles B62)

9/00 Sanitary or other accessories for lavatories (hand tools for cleaning the toilet bowl A47K 11/00; seats or covers for closets A47K 13/00; body supports, other than seats, for closets A47K 17/00; devices for preventing contamination of drinking-water pipes E03C 1/10)

9/02 Devices adding a disinfecting, deodorising or cleaning agent to the water while flushing, or in the flushing tank (apparatus for disinfection of materials or objects in general A61L 2/00; treatment of water in general C02F)

\[304\]

9/04 Special arrangement or operation of ventilating devices (ventilating rooms in general F24F)

9/08 Devices in the bowl producing upwardly-directed sprays; Modifications of the bowl for use with such devices (showers A47K 3/28; bathing devices for special therapeutic or hygienic purposes A61H 33/00, for specific parts of the body A61H 35/00)

11/00 Other component parts of water-closets (pipe joints or couplings in general F16L)

11/02 Water-closet bowls (auxiliary chambers with connections to flushing water for bowl-cleaning utensils E03D 9/00; modified for using upwardly-directed sprays E03D 9/08; seats or covers A47K 13/00)

13/00 Urinals (without flushing devices A47K 11/00)

E03F SEWERS; CESSPOOLS

Subclass index

SEWERS ................................................................. 1/00 to 9/00
CESSPOOLS ........................................................... 11/00, 7/00

1/00 Methods, systems, or installations for draining-off sewage or storm water

3/00 Sewer pipe-line systems

3/04 Pipes or fittings specially adapted to sewers (manufacture of concrete tubes B28; pipes or pipe fittings in general F16L)

5/00 Sewerage structures (covers or frames for manholes or the like E02D 29/14)

5/04 Gullies with or without odour seals or sediment traps

5/06 . Gully gratings

5/10 Collecting-tanks; Equalising-tanks for regulating the run-off; Laying-up basins

5/14 Devices for separating liquid or solid substances from sewage, e.g. sand or sludge traps, rakes or grates (for use in sewage purification plants or both in sewage purification plants or in sewer systems B01D, C02F)

7/00 Other installations or implements for operating sewer systems, e.g. for preventing or indicating stoppage; Emptying cesspools

9/00 Arrangements or fixed installations for cleaning sewer pipes, e.g. by flushing (sediment traps, rakes, screens, or the like, arranged in sewer lines E03F 5/14; cleaning pipes in general, devices for cleaning pipes B08B 9/02)

11/00 Cesspools (emptying cesspools E03F 7/00; features relating to treatment of sewage C02F)

(2010.01)
E04 BUILDING (layered materials, layered products in general B32B)

E04B GENERAL BUILDING CONSTRUCTIONS; WALLS, E.G. PARTITIONS; ROOFS; FLOORS; CEILINGS; INSULATION OR OTHER PROTECTION OF BUILDINGS (border constructions of openings in walls, floors, or ceilings E06B 1/00)

(1) This subclass covers working methods used in constructing new buildings and analogous working methods on existing buildings. Other working methods on existing buildings, except those for insulating, are classified in group E04G 23/00. [5]

(2) In this subclass, the following term is used with the meaning indicated:
   – “ceiling” includes all the finishing material concealing the underside of the load-carrying ceiling structure or roof structure. [4]

1/00 Constructions in general; Structures which are not restricted either to walls, e.g. partitions, or floors or ceilings or roofs (scaffolds, shutterings E04G; structures specially adapted for buildings for special purposes, general layout of buildings, e.g. modular co-ordination, E04H; the particular parts of buildings, see the relevant groups for those parts)

1/02 Structures consisting primarily of load-supporting, block-shaped or slab-shaped elements (E04B 1/32 to E04B 1/36 take precedence)

1/16 Structures made from masses, e.g. concrete, cast or similarly formed in situ with or without making use of additional elements, such as permanent forms, sub-structures to be coated with load-bearing material (E04B 1/32 to E04B 1/36 take precedence)

1/18 Structures comprising elongated load-supporting parts, e.g. columns, girders, skeletons (E04B 1/32 to E04B 1/36 take precedence; elongated load-supporting parts as elements, trusses, truss-like structures E04C 3/00)

1/19 Three-dimensional framework structures [2]

Note

Group E04B 1/19 takes precedence over groups E04B 1/20 to E04B 1/30. [2]

1/20 the supporting parts consisting of concrete, e.g. reinforced concrete, or other stone-like material

1/24 the supporting parts consisting of metal

1/26 the supporting parts consisting of wood

1/28 the supporting parts consisting of other material

1/30 the supporting parts being composed of two or more materials; Composite steel and concrete constructions (of reinforced concrete E04B 1/20)

1/32 Arched structures; Vaulted structures; Folded structures (vaulted roofs E04B 7/08)

1/34 Extraordinary structures, e.g. with suspended or cantilever parts supported by masts or tower-like structures enclosing elevators or stairs; Features relating to the elastic stability (E04B 1/342, E04B 1/343, E04B 1/348 take precedence; for floors E04B 5/43; buildings for special purposes, e.g. withstanding earthquake, E04H)

1/342 Structures covering a large free area, whether opened-sided or not, e.g. hangars, halls (roof trusses E04C 3/00; non-structural features for specified purposes, see the relevant groups of E04H)

1/343 . Structures characterised by movable, separable, or collapsible parts, e.g. for transport (movable roof parts E04B 7/16; floatable buildings B63B; small prefabricated buildings, transportable as a whole, E04H 1/12; small garages E04H 6/02; tents or canopies, in general E04H 15/00)

1/344 . with hinged parts

1/346 . Rotary buildings; Buildings with rotary units, e.g. rooms

1/348 . Structures composed of units comprising at least considerable parts of two sides of a room, e.g. box-like or cell-like units closed or in skeleton form (wall units locating conduits or the like E04C 2/52)

1/35 Extraordinary methods of construction, e.g. lift-slab, jack-block (E04B 1/34 takes precedence; falsework, shuttering for shaping walls, floors, ceilings or roofs for structures of particular shape in situ E04G 11/00; conveying or assembling of building materials E04G 21/00; working measures on existing buildings E04G 23/00)

1/36 Bearings or like supports allowing movement (for bridges E01D 19/04; buildings withstand ing earthquake E04H 9/02)

1/38 Connections for building structures in general

Note

Connections specially adapted for particular building parts or for particular building structures are classified in the groups for those parts or structures, e.g. in groups E04B 1/20, E04B 2/00, E04B 5/00, E04B 7/00 or E04B 9/00. Joints not specially adapted for building construction, or of more general application, are classified in the appropriate subclasses, e.g. F16B. [5]

1/41 Connecting devices specially adapted for embedding in concrete or masonry (spacers for cavity walls E04B 2/28, E04B 2/42; connectors for reinforcing elements E04C 5/16; fastening frames to the border of openings E06B 1/56)

1/48 Dowels, i.e. members adapted to penetrate the surfaces of two parts and to take the shear stresses

1/58 of bar-shaped building elements

1/61 of slab-shaped building elements with each other [5]

1/62 Insulation or other protection; Elements or use of specified material therefor (chemical compositions C01 to C11; implements for applying insulation or sealings E04F 21/00; buildings to withstand, or to provide protection against, external undesired influences E04H 9/00; sealing pipes in walls or partitions F16L 5/02; shielding against dangerous radiation G21F; constructions of particular parts of buildings, see the relevant groups for those parts)
1/64 . . for making damp-proof; Protection against corrosion (sealings E04B 1/66)

1/66 . . Sealing (additions of anti-leak properties to plaster C04B; bituminous sealing masses C08L 95/00; sealings for hydraulic engineering work in general E02B 3/00; against ground humidity or ground water E02D 31/00; coverings against rain or other precipitations of the atmosphere E04D; composition of material or manufacture of sealing foils, see the relevant classes for these foils)

1/68 . . . of joints, e.g. expansion joints (packing for joints in roads or airfields E01C 11/02; expansion joints for bridges E01D 19/00; sealings between foundation piles E02D 5/02; joints in foundation structures E02D 29/00; devices for sealing the spaces or joints between roof-covering elements E04D 1/00; sealing joints between roof-covering elements E04D 3/00; construction of joints for flooring or floor layers made of masses in situ E04F 15/12)

1/684 . . . using preformed elastomeric elements [5]

1/686 . . . comprising a plurality of hollow, deformable internal cells [5]

1/70 . . Drying or keeping dry, e.g. by air vents (by sealings E04B 1/66; during erection E04G 21/24)

1/74 . . Heat, sound or noise insulation, absorption, or reflection (forms of, or arrangements in, rooms for influencing or directing sound E04B 1/99; other building methods affording favourable thermal or acoustical conditions, e.g. accumulating of heat within walls (fire protection E04B 1/94; elements chiefly adapted for structural purposes E04C 1/00 to E04C 3/00; chiefly adapted for surface coverings E04F 13/00; as underlayers for floor coverings E04F 15/18; closures for wall or like openings E06B)

1/76 . . . specifically with respect to heat only (heat insulation in general F16L 39/00)

1/78 . . . Heat insulating elements

1/80 . . . . slab-shaped

1/82 . . . specifically with respect to sound only (noise damping in ducts or channels E04F 17/00; noise damping in general G10K 11/00)

1/84 . . . Sound-absorbing elements

1/92 . . Protection against other undesired influences or dangers (buildings providing protection against external dangers E04H 9/00; shielding against dangerous radiation G21F)

1/94 . . . against fire (fire-fighting A62C; impregnation of wood or similar materials B27K; fireproof doors E06B 5/10)

1/98 . . . against vibrations or shocks (on foundations E02D 31/00); against mechanical destruction, e.g. by air-raid (against incendiary damage only E04B 1/94; finishing work therefor E04F; buildings withstanding earthquake or the like, shelters, arrangements of splinter-catching walls E04H 9/00)

1/99 . Room acoustics, i.e. forms of, or arrangements in, rooms for influencing or directing sound (E04B 1/82 takes precedence; acoustics in general G10K 11/00; electric signal processing for producing a reverberation or echo sound G10K 15/08)

2/00 Walls, e.g. partitions, for buildings; Wall construction with regard to insulation; Connections specially adapted to walls (connections for building structures in general E04B 1/38; insulation for building in general E04B 1/62; building elements of relatively thin form for parts of buildings E04C 2/00)

2/02 . . built-up from layers of building elements

2/04 . . Walls having neither cavities between, nor in, the solid elements

2/14 . . Walls having cavities in, but not between, the elements, i.e. each cavity being enclosed by at least four sides forming part of one single element

2/28 . . Walls having cavities between, but not in, the elements; Walls of elements each consisting of two or more parts kept in distance by means of spacers, all parts being solid

2/42 . . Walls having cavities between, as well as in, the elements; Walls of elements each consisting of two or more parts, kept in distance by means of spacers, at least one of the parts having cavities

2/56 . . Walls of framework or pillarwork; Walls incorporating load-bearing elongated members (E04B 2/74, E04B 2/88 take precedence; pillars E04C 3/30)

2/58 . . . with elongated members of metal

2/64 . . . with elongated members of concrete

2/70 . . . with elongated members of wood

2/72 . . . Walls of elements of relatively thin form (E04B 2/56, E04B 2/74, E04B 2/88 take precedence; with joint fillings acting as framework or pillars E04B 2/64; elements E04C 2/00)

2/74 . . . Removable non-load-bearing partitions; Partitions with a free upper edge (framed panels E04C 2/38)

2/76 . . . with framework or posts of metal

2/80 . . . with framework or posts of wood

2/82 . . . characterised by the manner in which edges are connected to the building; Means therefor; Special details of easily-removable partitions

2/84 . . Walls made by casting, pouring, or tamping in situ (E04B 2/02, E04B 2/56 take precedence; forms therefor E04G 11/00; working of concrete or similar masses able to be cast or poured in situ E04G 21/02)

2/86 . . . made in permanent forms

2/88 . . . Curtain walls

2/90 . . . comprising panels directly attached to the structure [4]

5/00 Floors; Floor construction with regard to insulation; Connections specially adapted thereto (elements for floors, e.g. bricks, stones, filling bodies, girders, E04C; flooring as finishing work, insulation of flooring, sectional false floors, e.g. for computers, E04F 15/00) [5]

5/02 . . Load-carrying floor structures formed substantially of prefabricated units (E04B 5/43 to E04B 5/48 take precedence)

5/04 . . . with beams of concrete or other stone-like material, e.g. asbestos cement (E04B 5/08, E04B 5/14 take precedence)

5/08 . . . assembled of block-shaped elements, e.g. hollow stones (E04B 5/14 takes precedence; floors composed of reinforced brickwork E04B 5/44)

5/10 . . . with metal beams or girders, e.g. with steel lattice girders (E04B 5/14 takes precedence)

5/12 . . . with wooden beams (E04B 5/14 takes precedence)

5/14 . . . with beams or girders laid in two directions

(2010.01)
5/16 . Load-carrying floor structures wholly or partly cast or similarly formed in situ (E04B 5/43 to E04B 5/48 take precedence; floors merely characterised by the prefabricated elements E04C)

5/17 . Floor structures partly formed in situ

5/32 . Floor structures wholly cast in situ with or without form units or reinforcements

5/43 . Floor structures of extraordinary design; Features relating to the elastic stability; Floor structures specially designed for resting on columns only, e.g. mushroom floors (extraordinary constructions in general E04B 1/34)

5/44 . Floors composed of stones, mortar, and reinforcing elements (with inserts of glass E04B 5/46)

5/46 . Special adaptation of floors for transmission of light, e.g. by inserts of glass (of ceilings E04B 9/00; block-shaped elements E04C 1/00; slab- or sheet-shaped elements E04C 2/54; for roof covering E04D 3/02) [5]

5/48 . Special adaptations of floors for incorporating ducts, e.g. for heating or ventilating (in block-shaped elements E04C 1/00; in slab- or sheet-shaped elements E04C 2/52)

7/00 Roofs; Roof construction with regard to insulation

7/02 . with plane sloping surfaces, e.g. saddle roofs

7/04 . supported by horizontal beams or the equivalent resting on the walls (E04B 7/06 takes precedence)

7/06 . . Constructions of roof intersections or hopped ends

7/08 . . Vaults roofs (E04B 7/14 takes precedence; vaulted structures in general E04B 1/32; inflatable tents or canopies, in general E04H 15/20; inflatable forms for shaping in situ E04G 11/00)

7/10 . . Shell structures, e.g. of hyperbolic-parabolic shape; Grid-like formations acting as shell structures; Folded structures

7/12 . formed in bays, e.g. sawtooth roofs (E04B 7/10 takes precedence)

7/14 . Suspended roofs (suspended tents or canopies, in general E04H 15/00)

7/16 . Roof structures with movable roof parts (buildings for special purposes E04H)

7/18 . Special structures in or on roofs, e.g. dormer windows (in connection with roof coverings E04D 13/00, especially domes E04D 13/03)

9/00 Ceilings; Construction of ceilings, e.g. false ceilings; Ceiling construction with regard to insulation

9/02 . having means for ventilation or vapour discharge [5]

9/04 . comprising slabs, sheets or the like (E04B 9/06 to E04B 9/30 take precedence; slabs, sheets or the like per se E04C 2/00) [5]

9/06 . characterised by constractual features of the supporting construction [5]


9/22 . Connection of slabs, sheets or the like to the supporting construction [5]

9/30 . characterised by edge details of the ceiling, e.g. securing to an adjacent wall [5]

---

**E04C STRUCTURAL ELEMENTS, BUILDING MATERIALS** (for bridges E01D; specially designed for insulation or other protection E04B; elements used as building aids E04G; for mining E21; for tunnels E21D; structural elements with broader range of application than for building engineering F16, particularly F16S)

1/00 Building elements of block or other shape for the construction of parts of buildings (of relatively thin form E04C 2/00; structural elongated elements designed for load-supporting E04C 3/00; e.g. columns or pillars E04C 3/30; manufacture or material of building bricks, stones, or the like B28, C03, C04; paving elements E01C; general building constructions E04B, e.g. walls E04B 2/00, floors E04B 5/00, roofs E04B 7/00, ceilings E04B 9/00; structural elements specially designed for built-in conduit shafts E04F; special elements for building ovens or furnaces F24B, F27D) [5]

2/00 Building elements of relatively thin form for the construction of parts of buildings, e.g. sheet materials, slabs, or panels (materials or manufacture, see the relevant places, e.g. B27N, B29, D21J; made in situ E04B; especially designed for insulation or other protection E04B 1/62; load-carrying floor structures E04B 5/02, E04B 5/16; roofs consisting of self-supporting slabs E04B 7/00; roof- or like covering elements E04D 3/00; for lining or finishing E04F 13/00)

2/02 . characterised by specified materials (translucent E04C 2/54)

2/04 . of concrete or other stone-like material; of asbestos cement (E04C 2/26 takes precedence; material or manufacture B28, C04)

2/06 . reinforced

2/08 . . of metal, e.g. sheet metal (E04C 2/26 takes precedence)

2/10 . . of wood, fibres, chips, vegetable stems, or the like; of plastics; of foamed products (E04C 2/26 takes precedence)

2/26 . . composed of materials covered by two or more of groups E04C 2/04, E04C 2/08, E04C 2/10, or of materials covered by one of these groups with a material not specified in one of these groups

2/30 . characterised by the shape or structure (translucent E04C 2/54)

2/32 . . formed of corrugated or otherwise indented sheet-like material; composed of such layers with or without layers of flat sheet-like material

2/34 . . composed of two or more spaced sheet-like parts (E04C 2/32 takes precedence; spacers for cavity walls E04B 2/42)

2/38 . . with attached ribs, flanges, or the like, e.g. framed panels (concerned with attaching to other panels or elements to form a structure, see the places for the relevant structure, e.g. E04B 2/00)

2/40 . . composed of a number of smaller components rigidly or movably connected together, e.g. interlocking, hinges connected
### ROOF COVERINGS

#### E04C – E04D

2/52 . with special adaptations for auxiliary purposes, e.g. serving for locating conduits (E04C 2/34 takes precedence; block-shaped elements therefor E04C 1/00; floor structures incorporating ducts E04B 5/48)

2/54 . Slab-like translucent elements (floors for transmitting light E04B 5/46; translucent or open-work ceilings E04B 9/00; translucent roof coverings E04D 3/02, E04D 3/24)

3/00 Structural elongated elements designed for load-supporting (as building aids E04G)

3/02 . Joists; Girders, trusses, or truss-like structures, e.g. prefabricated;Lintels; Transoms (E04C 3/38 takes precedence; for structures characterised by movable, separable, or collapsible parts E04B 1/343)

3/04 . of metal (E04C 3/29 takes precedence; as reinforcing elements E04C 5/01; manufacture B21)

3/12 . of wood, e.g. with reinforcements, with tensioning members (E04C 3/29 takes precedence)

3/20 . of concrete or other stone-like material, e.g. with reinforcements or tensioning members (reinforcing elements E04C 5/00)

3/29 . built-up from parts of different materials (concrete with internal reinforcements or tensioning members E04C 3/20)

#### E04D

- **ROOF COVERINGS; SKY-LIGHTS; GUTTERS; ROOF-WORKING TOOLS** (coverings of outer walls by plaster or other porous material E04F 13/00)

#### Note

In this subclass, the following expression is used with the meaning indicated:

- “roof coverings” includes any similar kind of watertight covering against rain, snow, hail, or the like, for other parts of buildings.

#### Subclass index

<table>
<thead>
<tr>
<th>Subclass</th>
<th>Other materials</th>
<th>3/00 Roof covering by making use of flat or curved slabs or stiff sheets (E04D 1/00 takes precedence; built-up roofs E04D 11/00)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/00</td>
<td>1/02 Grooved or vaulted roofing elements (E04D 1/28, E04D 1/30 take precedence)</td>
<td>3/02 of plane slabs, slates, or sheets, or in which the cross-section is unimportant (E04D 3/35 takes precedence)</td>
</tr>
<tr>
<td>1/12</td>
<td>Roofing elements shaped as plain tiles or shingles, i.e. with flat outer surface (E04D 1/28, E04D 1/30 take precedence)</td>
<td>3/24 with special cross-section, e.g. with corrugations on both sides, with ribs, flanges, or the like (E04D 3/35 takes precedence)</td>
</tr>
<tr>
<td>1/28</td>
<td>Roofing elements comprising two or more layers, e.g. for insulation</td>
<td>3/35 Roofing slabs or stiff sheets comprising two or more layers, e.g. for insulation</td>
</tr>
<tr>
<td>1/30</td>
<td>Special roof-covering elements, e.g. ridge tiles, gutter tiles, gable tiles, ventilation tiles (E04D 3/40 takes precedence; roof covering aspects of energy collecting devices E04D 13/18)</td>
<td>3/36 Connecting; Fastening</td>
</tr>
<tr>
<td>1/34</td>
<td>Fastenings for attaching roof-covering elements to the supporting elements</td>
<td>3/40 Slabs or sheets locally modified for auxiliary purposes, e.g. for resting on walls, for serving as guttering; Elements for particular purposes, e.g. ridge elements, specially designed for use in conjunction with slabs or sheets (roof covering aspects of energy collecting devices E04D 13/18)</td>
</tr>
</tbody>
</table>

#### 3/00 Roof covering by making use of flat or curved slabs or stiff sheets (E04D 1/00 takes precedence; built-up roofs E04D 11/00)

3/30 Columns; Pillars; Struts (not designed for end loading E04C 3/02; posts, masts, as independent structures E04H 12/00)

5/00 Reinforcing elements, e.g. for concrete; Auxiliary elements therefor (material composition C21, C22; arrangements of reinforcing elements, see the relevant classes)

5/01 Reinforcing elements of metal, e.g. with non-structural coatings [5]

5/07 Reinforcing elements of material other than metal, e.g. of glass, of plastics, or not exclusively made of metal (metal elements with non-structural coatings E04C 5/01) [5]

5/12 Anchoring devices (tools or methods for tensioning E04G 21/12) [5]

5/16 Auxiliary parts for reinforcements, e.g. connectors, spacers, stirrups (tools for connecting reinforcing elements E04G 21/12)

5/18 . of metal or substantially of metal

5/20 . of other material than metal or with only additional metal parts, e.g. concrete or plastics spacers with metal binding wires
5/00 Roof covering by making use of flexible material, e.g. supplied in roll form (using stiff sheets E04D 3/00; gravelling of flat roofs E04D 7/00; built-up roofs E04D 11/00)

7/00 Roof covering by sealing masses applied in situ; Gravelling of flat roofs

9/00 Roof covering by using straw, thatch, or like materials (impregnation against incendiary damage B27K)

11/00 Roof covering, as far as not restricted to features covered by only one of groups E04D 1/00 to E04D 9/00; Roof covering in ways not provided for by groups E04D 1/00 to E04D 9/00

12/00 Non-structural supports for roofing materials, e.g. battens, boards (E04D 11/00 takes precedence)

13/00 Special arrangements or devices in connection with roof coverings; Roof drainage (ventilation tiles E04D 1/30; ventilation slabs E04D 3/40; structures for roof-covering aspects of dormer windows E04D 7/18; internal channels E04F 17/00; roofing elements therefor, see the relevant groups)

13/03 . Sky-lights; Domes; Ventilating sky-lights (E04D 13/14 takes precedence; structures therefor E04B 7/18)

13/10 . Snow traps

13/12 . Devices or arrangements allowing walking on the roof or in the gutter

13/14 . Junctions of roof sheetings to chimneys or other parts extending above the roof

13/15 . Trimming strips; Edge strips; Fascias (E04D 13/14 takes precedence) [6]

13/16 . Insulating devices or arrangements in so far as the roof covering is concerned (methods for keeping dry building structures in general E04B 1/70; buildings for extreme climates E04H 9/16) [6]

13/18 . Roof covering aspects of energy collecting devices, e.g. including solar panels (heat collectors per se F24J, e.g. solar heat collectors F24J 2/02; semiconductor devices for converting solar energy into electrical energy H01L 25/00, H01L 31/00) [4]

15/00 Apparatus or tools for roof working

---

E04F FINISHING WORK ON BUILDINGS, E.G. STAIRS, FLOORS (windows, doors E06B)

Subclass index

SUNSHADES, Awnings.................................10/00

STAIRWAYS.....................................................11/00

COVERING OR FINISHING WALLS,
CEILINGS, OR FLOORS..............................13/00, 15/00, 19/00

DUCTS OR CHANNELS ................................17/00

IMPLEMENTS..............................................21/00

OTHER FINISHING DETAILS .........................19/00

10/00 Sunshades; Awnings (baldachins A45B, A45F, E04H; trailer awnings E04H 15/00; for tents E04H 15/32)

11/00 Stairways, ramps, or like structures (mounting or marking-off stairways E04F 21/00; of temporary construction E04G 27/00; Balustrades; Handrails (ladders permanently attached to fixed structures E06C 9/00)

11/02 . Stairways; Layouts thereof

11/18 . Balustrades; Handrails (guard-rails on ships B63B; for bridges E01D 19/00; for roads E01F 13/00, E01F 15/00; for roads E01F 17/00)

13/00 Coverings or linings, e.g. for walls or ceilings (flooring E04F 15/00; decoration of surfaces, mosaic work B44, e.g. paper-hanging B44C 7/00; made of webs, e.g. of fabrics or wallpaper, D03D, D04G, D04H, D06N, D21H; construction of ceilings E04B 9/00; roofings or similar water-tight coverings against precipitation E04D) [3]

13/02 . of plastic materials hardening after applying, e.g. plaster (surface treatment in painting technique B44D; inorganic or bituminous masses C04B; organic plastics C08L)

13/07 . composed of covering or lining elements; Sub-structures therefor; Fastening means therefor [8]

13/072 . composed of specially adapted, structured or shaped covering or lining elements [8]

13/073 . for particular building parts, e.g. corners or columns [8]

13/074 . for accommodating service installations or utility lines, e.g. heating conduits, electrical lines, lighting devices or service outlets [8]

13/075 . for insulation or surface protection, e.g. against noise or impact [8]

13/076 . characterised by the joints between neighbouring elements, e.g. with joint fillings or with tongue and groove connections [8]

13/077 . composed of several layers, e.g. sandwich panels (E04F 13/075 takes precedence) [8]

13/078 . Stretched foil- or web-like elements attached with edge gripping devices [8]

13/08 . composed of a plurality of similar covering or lining elements (E04F 13/072 takes precedence; borders, skirtings E04F 19/02) [1,8]

13/09 . of elements attached to a common web, support plate or grid [8]

Note

Group E04F 13/09 takes precedence over groups E04F 13/10 to E04F 13/18. [8]

13/10 . of wood [1,8]

13/12 . of metal [1,8]

(2010.01)
<table>
<thead>
<tr>
<th>E04F – E04G</th>
</tr>
</thead>
<tbody>
<tr>
<td>13/14 . . . of stone or stone-like materials, e.g. ceramics; of glass [1,8]</td>
</tr>
<tr>
<td>13/16 . . . of fibres or chips, e.g. bonded with synthetic resins [1,8]</td>
</tr>
<tr>
<td>13/18 . . . of organic plastics with or without reinforcements or filling materials (of plastic-bound fibres or chips E04F 13/16) [1,8]</td>
</tr>
<tr>
<td>13/21 . . . Fastening means specially adapted for covering or lining elements [8]</td>
</tr>
<tr>
<td>13/22 . . . Anchors, support angles or consoles [8]</td>
</tr>
<tr>
<td>13/24 . . . Hidden fastening means on the rear of the covering or lining elements (E04F 13/30 takes precedence) [8]</td>
</tr>
<tr>
<td>13/26 . . . Edge engaging fastening means, e.g. clamps, clips or border profiles [8]</td>
</tr>
<tr>
<td>13/30 . . . Magnetic fastening means [8]</td>
</tr>
</tbody>
</table>

| 15/00 Flooring (stair treads E04F 11/02; coverings not specially adapted for floors E04F 13/00; borders, skirtings E04F 19/02; gratings for cleaning soles of footware A47L 23/00; of similar materials to roads E01C; basic or rough floors E04B 5/00) [6] |
| 15/02 . . . Flooring or floor layers composed of a number of similar elements (of webs E04F 15/01) |
| 15/02 . . . Flooring consisting of parquetry tiles on a non-rollable sub-layer of other material, e.g. board, concrete, cork [2] |
| 15/04 . . . only of wood, e.g. with wooden connecting members (rollable parquet E04F 15/06) |
| 15/06 . . . of metal, whether or not in combination with other material (gratings as building elements E04C 2/30) |
| 15/08 . . . only of stone or stone-like material, e.g. concrete; of glass |
| 15/10 . . . of other materials, e.g. fibrous or chipped materials, organic plastics, magnesite, hardboard |
| 15/12 . . . Flooring or floor layers made of masses in situ, e.g. seamless magnesite floors, terrazzo (morgaanic or bituminous masses C04B; organic plastic masses C08L) |
| 15/16 . . . Flooring, e.g. parquet on flexible web, laid as flexible webs; Webs specially adapted for use as flooring (resiliently-mounted floors, e.g. sprung floors, E04F 15/22; linoleum D06N; webs in general, manufacturing of webs, see the relevant classes) |
| 15/18 . . . Separately-laid insulating layers; Other additional insulating measures; Floating floors (insulating of buildings in general E048 1/62) |
| 15/20 . . . for sound insulation |
| 15/22 . . . Resiliently-mounted floors, e.g. sprung floors (laid as webs E04F 15/16) [2] |

| 17/00 Vertical ducts (free-standing chimneys E04H 12/00); Channels, e.g. for drainage (covers giving access to the ducts or channels, covers of inspection holes E04F 19/08; pipes in general F16L; pipe-line systems F17D) |
| 19/00 Other details or constructional parts for finishing work on buildings (ladders, e.g. climbing irons, E06C 9/00) |
| 19/02 . . . Borders; Finishing strips, e.g. beadings; Light coves (for protecting edges of plaster E04G 13/02) |
| 19/04 . . . for use between floor or ceiling and wall, e.g. skirtings |
| 19/08 . . . Built-in cupboards; Masks of niches; Covers of holes enabling access to installations (clean-out doors of chimneys F23J) |

| 21/00 Implements for finishing work on buildings (for working or treating building elements of stone or stone-like material B28D; designed specifically for special details provided for in the other groups of this subclass, see the relevant groups for the details) |
| 21/02 . . . for applying plasticised masses to surfaces, e.g. plastering walls (specialty for laying flooring E04F 21/00; applying liquids or other fluent materials to surfaces, in general B05; decorative arts B44) |
| 21/165 . . . for finishing joints, e.g. implements for raking or filling joints, joiners (bricklayers' tools E04G 21/16; repairing, e.g. filling cracks, E04G 23/02) [3] |
| 21/18 . . . for setting wall or ceiling slabs or plates (tools for mosaic work B44C) |

---

### E04G

**SCAFFOLDING; FORMS; SHUTTERING; BUILDING IMPLEMENTS OR OTHER BUILDING AIDS, OR THEIR USE; HANDLING BUILDING MATERIALS ON THE SITE; REPAIRING, BREAKING-UP OR OTHER WORK ON EXISTING BUILDINGS**

**Note**

In this subclass, the following term is used with the meaning indicated:

- “scaffolding” includes other supports for like purposes.

**Subclass index**

**SCAFFOLDING**

- Scaffolds resting on the ground; supported by the building ......................... 1/00; 3/00
- Component parts or accessories; coupling elements .................................... 5/00; 7/00

**FALSEWORK, FORMS OR SHUTTERINGS**

- For general use ......................................................... 9/00
- For particular use .............................................. 11/00, 13/00, 15/00

**Connecting members, auxiliary members.......................................................... 17/00
**Auxiliary treatment.......................................................... 19/00

**OTHER IMPLEMENTS OR ACCESSORIES**

- Temporary arrangements for access ........................................ 27/00
- Preparing or conveying materials .................................................. 21/00
- Shores ............................................................................. 25/00

**WORKING MEASURES ON EXISTING BUILDINGS........................................... 23/00**

---

*(2010.01)*
Workmen’s or safety scaffolds

1/00 Scaffolds primarily resting on the ground (component parts E04G 5/00)
1/17 . Comprising essentially pre-assembled three-dimensional elements, e.g. cubic elements [8]
1/18 . adjustable in height
1/36 . Scaffolds for particular parts of buildings or buildings of particular shape, e.g. for stairs, cupolas, domes
1/38 . Scaffolds partly supported by the building (ladders attachable to structures E06C 1/00) [8]

3/00 Scaffolds essentially supported by building constructions, e.g. adjustable in height (E04G 1/00 takes precedence)
3/18 . supported by cantilevers or other provisions mounted in openings in the building, e.g. window openings (E04G 3/28 takes precedence) [8]
3/20 . supported by walls (E04G 3/28 takes precedence; wall-anchors for supporting scaffolds E04G 5/00; consoles E04G 5/00) [8]
3/22 . supported by roofs or ceilings (E04G 3/28 takes precedence) [8]
3/24 . specially adapted for particular parts of buildings or for buildings of particular shape, e.g. chimney stacks or pylons (E04G 3/28 takes precedence) [8]
3/28 . Mobile scaffolds; Scaffolds with mobile platforms [8]

5/00 Component parts or accessories for scaffolds (connections E04G 7/00) [1,8]
5/10 . Steps or ladders specially adapted for scaffolds [8]
5/12 . Canopies [8]
5/16 . Struts or stiffening rods, e.g. diagonal rods [8]

7/00 Connections between parts of the scaffold (for building structures in general E04B 1/38; connections in general F16B)

Falsework, forms or shutterings for shaping of building parts in situ [5]

9/00 Forming or shuttering elements for general use
9/02 . Forming boards or similar elements (E04G 9/08, E04G 9/10 take precedence)
9/08 . Forming boards or similar elements, which are collapsible, foldable, or able to be rolled up
9/10 . with additional peculiarities such as surface shaping, insulating or heating, permeability to water or air

11/00 Forms, shutterings, or falsework for making walls, floors, ceilings, or roofs (struts E04G 25/00)

13/00 Falsework, forms or shutterings for particular parts of buildings, e.g. stairs, steps, cornices or balconies (moulds for making units for prefabricated buildings or prefabricated stair units B28B 7/22)

15/00 Forms or shutterings for making openings, cavities, slits, or channels (forming part of shuttering for walls E04G 11/00)

17/00 Connecting or other auxiliary members for forms, falsework structures, or shutterings
17/02 . Connecting or fastening means for non-metallic forming or stiffening elements
17/04 . Connecting or fastening means for metallic forming or stiffening elements
17/06 . Tying means; Spacers

17/14 . Bracing or strutting arrangements for formwalls; Devices for aligning forms (E04G 25/00 takes precedence)
17/16 . Members, e.g. consoles, for attachment to the wall to support girders, beams, or the like carrying forms or moulds for floors, lintels, or transoms
17/18 . Devices for suspending or anchoring form elements to girders placed in ceilings, e.g. hangers

19/00 Auxiliary treatment of forms, e.g. dismantling; Cleaning devices (lubricating compositions C10M)

21/00 Preparing, conveying, or working-up building materials or building elements in situ: Other devices or measures for constructional work (working stone-like materials B28D; conveying in general B65G; lifting devices B66; measuring instruments G01)
21/02 . Conveying or working-up concrete or similar masses able to be heaped or cast (working concrete in general, e.g. mixing machines, B28C; composition of concrete C04B; construction and surfacing of floors made of similar material to roads or pavements E01C; in connection with barrages E02B 7/00; in connection with foundations E02D 15/00; in connection with finishing work E04F)
21/04 . Devices for both conveying and distributing (concrete pumps F04)
21/06 . Compacting concrete, e.g. by application of vacuum before hardening (for road building E01C 19/00; devices for compacting also soil E02D 3/00)
21/10 . Devices for levelling, e.g. templates or boards (smoothing tools E04F 21/02, E04F 21/00)
21/12 . Mounting of reinforcing inserts; Prestressing (shell tubes for prestressing members E04C 5/00; anchoring means E04C 5/12; connections of reinforcing elements and spacers E04C 5/16)
21/14 . Conveying or assembling building elements (roofing E04D; finishing work E04F)
21/16 . Tools or apparatus (devices for erecting fences E04H 17/26)
21/18 . Adjusting tools; Templates
21/20 . for applying mortar
21/22 . for setting building elements with mortar, e.g. brick-laying machines
21/24 . Safety or protective measures preventing damage to building parts or finishing work during construction (as auxiliary structures for scaffolds E04G 5/00)
21/32 . Safety or protective measures for persons during the construction of buildings (related to scaffolds E04G 5/00; ropes or belts for life-saving A62B 1/00, A62B 35/00; climbing tools, e.g. climbing irons for masts, A63B 27/00)

23/00 Working measures on existing buildings (on foundations E02D 35/00, E02D 37/00; in connection with insulations E04B; subsequent or finishing work E04F)
E04G – E04H

Note
In addition to the subject matter referred out in this group, subject matter relating to working measures on existing buildings which are analogous to those used in constructing new buildings, is classified in the appropriate construction groups. [5]

23/02 . Repairing, e.g. filling cracks; Restoring; Altering; Enlarging

23/03 . specially adapted for roofs, e.g. to fit out attics [5]
23/08 . Wrecking of buildings (dismantling bridges E01D 24/00) [1,8]

25/00 Shores or struts (specially designed for use in mines E21D 15/00); Chocks

27/00 Temporary arrangements for giving access from one level to another for men or vehicles, e.g. steps, ramps (as parts or accessories for scaffolds E04G 5/00; gangways B63; lifts B66; landing bridges E01D 15/00; permanent stairways or ramps E04F 11/00; ladders E06C)

E04H BUILDINGS OR LIKE STRUCTURES FOR PARTICULAR PURPOSES; SWIMMING OR SPLASH BATHS OR POOLS; MASTS; FENCING; TENTS OR CANOPIES, IN GENERAL (foundations E02D) [4]

(1) This subclass covers
– primarily the layout of buildings as a whole;
– details which are peculiar to types of buildings, or buildings for special purposes, specified in the groups;
– canopies in general and canopies similar in construction to tents. [4]

(2) This subclass does not cover canopies having special application, which are covered by the relevant place, e.g. protecting chairs against the weather A47C 7/62, bed canopies A47C 29/00, sun shades or awnings for buildings E04F 10/00. [4]

(3) In this subclass, the following terms are used with the meanings indicated:
– “buildings” does not exclude engineering structures and other constructions;
– “tent” means a tent or canopy having a supporting means, e.g. frame and a flexible cover. [4]

Subclass index

1/00 Buildings or groups of buildings for dwelling or office purposes; General layout, e.g. modular co-ordination, staggered storeys (E04H 3/00 takes precedence; buildings for two or more purposes, drive-in buildings E04H 14/00; building construction in general E04B 1/00)

1/02 . Dwelling houses; Buildings for temporary habitation (small erections for limited occupation E04H 1/12)

1/04 .. Apartment houses arranged in two or more levels

1/12 Small buildings or other erections for limited occupation, erected in the open air or arranged in buildings, e.g. kiosks, waiting shelters for bus stops or for filling stations, roofs for railway platforms, watchmen’s huts, dressing cubicles (movable screens as household equipment A47G 5/00)

1/14 .. Telephone cabinets

3/00 Buildings or groups of buildings for public or similar purposes; Institutions, e.g. infirmaries, prisons (portions of buildings for individual occupation, e.g. cubicles, E04H 1/00; structures covering a large free area E04B 1/342)

3/02 . Hotels; Motels; Coffee-houses; Restaurants; Shops; Department stores

3/06 . Museums; Library buildings

3/08 . Hospitals, infirmaries, or the like; Schools; Prisons

3/10 . for meetings, entertainments, or sports (building details providing acoustical effects E04B 1/99)

3/14 .. Gymnasiums; Other sporting buildings (tribunes E04H 3/10)

4/00 Swimming or splash baths or pools (wave-producers for baths A47K 3/10; separation B01D; treatment of water C02F; wave-producing pumps F04D 35/00) [5]

5/00 Buildings or groups of buildings for industrial or agricultural purposes (silos E04H 7/00; greenhouses A01G 9/14; building construction in general E04B 1/00)

6/00 Buildings for parking cars, rolling-stock, aircraft, vessels, or like vehicles, e.g. garages (tents for use as garages E04H 15/00; bicycle stands B62H; storing of vessels on land B63C 15/00; construction of ground-supported surfaces E01C; marking of parking areas on the ground E01F 9/00; building construction in general E04B 1/00)

6/02 . Small garages, e.g. for one or two cars (attached to, or supported by, the vehicle B62D; prefabricated and with undivided interior E04B 1/343)

6/06 .. with means for shifting or lifting vehicles

6/08 . Garages for many vehicles

(2010.01)
6/12 with mechanical means for shifting or lifting vehicles
6/14 with endless conveyer chains having load-carrying parts moving vertically, e.g. paternoster lifts
6/18 with means for transport in vertical direction only or independently in vertical and horizontal directions (E04H 6/14 takes precedence)
6/20 characterised by use of conveyer chains or rotatable rollers for horizontal transport
6/22 characterised by use of movable platforms for horizontal transport
6/24 characterised by use of dollies for horizontal transport
6/26 characterised by use of tiltable floors or floor sections; characterised by use of movable ramps
6/28 characterised by use of turntables or rotary rings for horizontal transport

7/00 Construction or assembling of bulk storage containers employing civil engineering techniques in situ or off the site (tower aspects E04H 12/00; storage aspects, e.g. floating roofs, sealing means, filling or discharging means B65D, B65G, F17B, F17C; foundations E02D 27/32) [2]

9/00 Buildings, groups of buildings, or shelters, adapted to withstand or provide protection against, abnormal external influences, e.g. war-like action, earthquake, extreme climate (floating buildings B63B; foundation aspects E02D; building constructions in general E04B; bearings or like supports allowing movement E04B 1/36; special details regarding insulation or other protection E04B 1/62; supporting structures for endangered or damaged existing buildings or parts thereof E04G 23/00; doors, windows E06B 5/00; air-conditioning, ventilation F24F; camouflage F41H 3/00; cells or rooms shielded against dangerous radiation G21F 7/00)
9/02 withstanding earthquake or sinking of ground (foundations E02D 27/34)
9/04 against air-raid or other war-like actions (respiratory apparatus A62B)

9/14 against other dangerous influences, e.g. tornadoes, floods
9/16 against adverse conditions, e.g. extreme climate, pests

12/00 Towers; Masts, poles; Chimney stacks; Water-towers; Methods of erecting such structures (cooling towers E04H 5/00; supports for road signs E01F 9/011; foundation piles E02D 5/22; foundations for masts, poles, or chimneys E02D 27/32; structural elongated members in general E04C 3/00; fixed climbing irons E06C 9/00; derricks for oil drilling E21B 15/00) [6]
12/22 Sockets or holders for poles or posts

13/00 Monuments; Tombs; Columbaria (sculpture or other artistic features B44)

14/00 Buildings for combinations of different purposes not covered by any single one of main groups E04H 1/00 to E04H 13/00 of this subclass, e.g. for double purpose (E04H 3/02, E04H 9/04 take precedence); Buildings of the drive-in type

15/00 Tents or canopies, in general [4]
15/20 inflatable, e.g. shaped, strengthened, or supported by fluid pressure (connection of valves to inflatable elastic bodies B60C 29/00; inflatable forms for making walls, floors, ceilings or roofs in situ E04G 11/00) [4]
15/32 Parts, components, construction details, accessories, interior equipment, specially adapted for tents, e.g. guy-line equipment, skirts, thresholds [4]
15/34 Supporting means, e.g. frames [4]

17/00 Fencing, e.g. fences, enclosures, corrals (sockets for posts E04H 12/22; features peculiar to electrified fences A01K 3/00, H05C; means for allowing passage through fences, barriers, or the like E06B 11/00)
17/02 Wire fencing, e.g. made of wire mesh (E04H 17/14 takes precedence; working or processing of wire B21F, e.g. making wire nets B21F 27/00)
17/14 Fences constructed of rigid elements, e.g. with additional wire fillings or with posts
17/16 using prefabricated panel-like elements, e.g. wired frames
17/26 Devices for erecting or removing fences
Note

In this class, the following terms are used with the meanings indicated:

– "wing" is a general term for swingable, slidable, or otherwise movable doors or windows. This term also includes other movable structures such as drawers, lids of chests, car boots, or car bonnets, to which the operating, mounting, latching, or locking means covered by this class may be applied;

– "frame" means any member to which a wing may be held by a fastening device. It does not include a framework forming part of the wing, but it may be another wing;

– "lock" means primarily a device for releasing or securing any member, which requires a key or a permutation mechanism for release. In groups E05B 1/00 to E05B 9/00, E05B 13/00 to E05B 17/00, E05B 39/00 to E05B 47/00, E05B 51/00, E05B 53/00, E05B 63/00 and E05B 65/00 however, the term "lock" may include other fastening devices;

– "bolt" means a sliding, pivoted, or otherwise movable member such as is normally carried by a door to hold it shut by engagement with a keeper on the frame. It may be operated by hand directly or through mechanism or by a key; it may be a latch (see below);

– "latch" means a bolt arranged to be moved to the releasing position against the force of a spring, or some other returning force, when a wing meets the frame on closing, so that it does not have to be operated by hand to secure the wing, but only to open it;

– "hasp" means a member hinged to the frame or wing so that it can be moved towards the face of the wing or frame and secured thereto, e.g. by a turn-button, by a padlock and staple.

Subclass index

LOCKS WITH TUMBLERS

Moved by rotation of the key ...................... 21/00, 23/00, 25/00

Set by pushing the key in .......................... 27/00 to 33/00

LOCKS FOR USE WITH SPECIAL KEYS

OR KEY SETS.............................................................. 35/00

PERMUTATION OR PUZZLE LOCKS.................. 37/00, 49/00

PADLOCKS............................................................... 67/00, 37/00

LOCKS WITH INDICATING OR TIMING

DEVICES................................................................. 39/00 to 45/00

LOCKS WITH PROVISION FOR

LATCHING............................................................. 55/00 to 61/00, 65/20

LOCKS WITH OTHER SPECIAL

STRUCTURAL FEATURES........................................... 63/00

LOCKS FOR SPECIAL USE........................................ 65/00, 69/00 to 75/00

OPERATION OR CONTROL OF LOCKS............... 47/00 to 53/00

DETAILS OR ACCESSORIES OF LOCKS

OR THE LIKE, KEYS

Knobs or handles ........................................... 1/00 to 7/00

Other details or accessories of locks

or latches ............................................................ 9/00 to 17/00

Keys ................................................................. 19/00

HANDCUFFS .......................................................... 75/00

Details or accessories of locks or the like; keys

1/00 Knobs or handles for wings (for furniture

A47B 95/00); Knobs, handles, or press buttons for

locks or latches on wings (E05B 5/00, E05B 7/00 take

precedence)

3/00 Fastening handles to lock or latch parts

5/00 Handles completely let into the surface of the wing

7/00 Handles pivoted about an axis parallel to the wing

(E05B 5/00 takes precedence)

9/00 Lock or latch-mechanism casings mountable on or in

wings (padlock casings E05B 67/00)

11/00 Devices preventing keys from being removed from

the lock

13/00 Devices preventing the key or the handle or both

from being used

15/00 Other details of locks; Parts for engagement by bolts

of fastening devices (fastening devices for wings other

than locks or associated with locks E05C)

17/00 Accessories in connection with locks (locks with

indicating or timing devices E05B 39/00 to E05B 45/00;

buffers E05F 5/00; means for preventing rattling of

wings E05F 7/00; means for taking the weight of the

wing E05F 7/00) [4]

19/00 Keys; Accessories therefor (making keys, see

the relevant places, e.g. B21D 53/00; milling grooves in

keys B23C 3/00)

Locks with rotary keys moving lamelliform tumblers

perpendicular to the key

21/00 Locks with rotary keys moving lamelliform tumblers

perpendicular to the key, in which the tumblers do

not follow the movement of the bolt

23/00 Locks with rotary keys moving lamelliform tumblers

perpendicular to the key, in which the tumblers follow the movement of the bolt

25/00 Locks with rotary keys moving lamelliform tumblers

perpendicular to the key, characterised by the tumblers

Locks of which the tumblers are set by pushing the key in

27/00 Cylinder locks with tumbler pins or balls that are set

by pushing the key in (2010.01)
29/00 Cylinder locks with plate tumblers that are set by pushing the key in
31/00 Cylinder locks with both tumbler pins or balls and plate tumblers that are set by pushing the key in
33/00 Cylinder locks with tumblers that are set by pushing the key in, in which the bolt is moved by means other than the key
35/00 Locks for use with special keys or a plurality of keys
37/00 Permutation locks (electric permutation locks E05B 49/00; for bicycles E05B 71/00); Puzzle locks

Locks with indicating or timing devices
39/00 Locks giving indication of unauthorised unlocking
41/00 Locks with visible indication as to whether the lock is locked or unlocked
43/00 Time locks (clocks or clock mechanisms with attached or built-in means operating any device at preselected times or after a predetermined time interval G04C 23/00)
45/00 Alarm locks (alarm devices actuated by tampering with fastenings in general G08B)

Operation or control of locks by non-mechanical means, e.g. from a distance
47/00 Operating or controlling locks or other fastening devices by electric or magnetic means (electric permutation locks E05B 49/00; holding in open position or limiting movement of wings by magnetic or electromagnetic attraction E05C 17/00; key switches H01H 27/00) [2]
47/02 . Adaptation of locks, latches, or parts thereof, for movement of the bolt by electromagnetic means
47/06 . Controlling mechanically-operated bolts by electromagnetically-operated detents
49/00 Electric permutation locks; Circuits therefor
49/02 . with electrical arrangements inside the lock
49/04 . with electrical arrangements outside the lock
51/00 Operating or controlling locks or other fastening devices by other non-mechanical means

53/00 Operation or control of locks by mechanical transmissions, e.g. from a distance (for passenger doors E05B 65/20)

Locks with provision for latching
55/00 Locks in which a sliding latch is used also as a locking bolt
57/00 Locks in which a pivoted latch is used also as locking means
59/00 Locks with latches separate from the lock-bolts, or with a plurality of latches or lock-bolts
61/00 Other locks with provision for latching

Locks with special structural characteristics or for special use
63/00 Locks with special structural characteristics
65/00 Locks for special use (closures for bags or trunks A45C 13/00)
65/02 . for thin, hollow, or thin-metal wings
65/06 . for swing doors
65/08 . for sliding wings
65/10 . for panic or emergency doors
65/12 . for vehicles (E05B 71/00 takes precedence; locking arrangements for non-fixed vehicle roofs B60J 7/00) [2]
65/20 . . for passenger or like doors
65/22 . . . with rectilinearly-moving bolt
65/32 . . . with the bolt turning about an axis
65/36 . . . Locking several doors simultaneously
65/40 . . . Locking one door by shutting another (by non-mechanical means E05B 47/00, E05B 51/00; operation of locks by mechanical transmissions E05B 53/00; fastenings, other than locks, for double doors E05C 7/00)
65/42 . . . Securing the latch or bolt by movement of the vehicle
65/44 . . for furniture or drawers
67/00 Padlocks (permutation locks E05B 37/00); Details thereof

Locking devices for clothing, sticks, umbrellas, or cycles
69/00 Devices for locking clothing; Lockable clothing holders or hangers (dress or hat holders in general A47G 25/00)
71/00 Locks specially adapted for bicycles, other than padlocks (locks integral with cycles B62H 5/00)
73/00 Devices for locking portable objects against unauthorised removal; Locking devices not provided for in other groups of this subclass

75/00 Handcuffs

E05C BOLTS OR FASTENING DEVICES FOR WINGS, SPECIALLY FOR DOORS OR WINDOWS (latching means for sideboard or tailgate structures for vehicles B62D 33/02; fastening devices for constructional or engineering elements E04, F16B; locks, fastening devices structurally or operatively combined or having significant cooperation with locks E05B; means for operating or controlling wing fasteners in conjunction with mechanisms for moving the wing E05F)

(1) In this subclass, only the movement essential for securing the wing is considered, e.g. a sliding bolt which is rotated on its axis to prevent its withdrawal is classified as having only a sliding movement.
(2) Attention is drawn to the definitions following the title of class E05.

Subclass index

FASTENING DEVICES
characterised by the way the bolt is moved........................................ 1/00 to 5/00
specially for holding wings open.................................. 17/00, 19/00

Bolts, latches or equivalent wing-fastening devices,
characterised by special way of movement, e.g. moving rectilinearly, pivotally or rotatively

1/00 Fastening devices with bolts moving rectilinearly
(devices released automatically by pull or pressure on the wing E05C 19/00)

3/00 Fastening devices with bolts moving pivotally or rotatively
(devices released automatically by pull or pressure on the wing E05C 19/00)

5/00 Fastening devices with bolts moving otherwise than only rectilinearly and only pivotally or rotatively
(devices released automatically by pull or pressure on the wing E05C 19/00)

7/00 Fastening devices specially adapted for two wings

Note
In this group, if a fastening device merely secures one wing to another wing which is already closed it is not regarded as specially adapted for two wings.

9/00 Arrangement of simultaneously-actuated bolts or other securing devices at well-separated positions on the same wing (essentially involving locking means E05B 63/00; similar constructions for engineering closures for pressure vessels, in general F16J 13/00)

17/00 Devices for holding wings open; Devices for limiting opening of wings or for holding wings open by a movable member extending between frame and wing; Braking devices, stops or buffers, combined therewith (combined with hinges E05D 11/00; combined with operating apparatus for wings E05F; other braking devices, stops, buffers E05F 5/00) [4]

19/00 Other devices specially designed for securing wings
(movable draft sealings additionally used for bolting E06B 7/18) [2]

21/00 Arrangement or combinations of wing fastening, securing, or holding devices, not covered by any single one of main groups E05C 1/00 to E05C 19/00

E05D HINGES OR OTHER SUSPENSION DEVICES FOR DOORS, WINDOWS, OR WINGS (pivotal connections in general F16C 11/00)

Subclass index

HINGES
General structure ................................................. 1/00, 3/00
Special structure .................................................... 7/00

OTHER SUSPENSION DEVICES FOR WINGS .......................................................... 13/00, 15/00

1/00 Pinless hinges; Substitutes for hinges

3/00 Hinges with pins (trunnions placed at opposite edges of the wing E05D 7/00)

5/00 Construction of single parts, e.g. the parts for attachment

7/00 Hinges or pivots of special construction (used for special suspension arrangements E05D 15/00; so as to be self-closing E05F 1/00; with means for raising wings before being turned E05F 7/00)

7/04 Hinges adjustable relative to the wing or the frame
7/08 for use in suspensions comprising two spigots placed at opposite edges of the wing, especially at the top and the bottom, e.g. trunnions

9/00 Flaps or sleeves specially designed for making from particular material, e.g. hoop-iron, sheet metal, plastics

11/00 Additional features or accessories of hinges

13/00 Accessories for sliding or lifting wings, e.g. pulleys, safety catches (counterbalance devices E05F 1/00, E05F 3/00) [4]

15/00 Suspension arrangements for wings (arrangements of wings not characterised by the construction of the supporting means E06B 3/32)

15/06 for wings sliding horizontally more or less in their own plane
15/10 . movable out of one plane into a second parallel plane
for wings sliding vertically more or less in their own plane

for folding wings

supported on arms movable in vertical planes

allowing alternative movements (for vertically-sliding wings E05D 15/16)

E05F DEVICES FOR MOVING WINGS INTO OPEN OR CLOSED POSITION; CHECKS FOR WINGS; WING FITTINGS NOT OTHERWISE PROVIDED FOR, CONCERNED WITH THE FUNCTIONING OF THE WING

Note

In this subclass, the following terms are used with the meanings indicated:

– “closer” or “opener” includes devices for assisting wing-movement or for wing-counterbalancing. [4]

Subclass index

CLOSERS, OPENERS, OR CHECKS FOR WINGS ................................................................. 1/00, 3/00, 5/00

ACCESSORIES FOR WINGS ................................................................. 7/00

OPERATING MECHANISMS FOR WINGS .......... 9/00 to 17/00

1/00 Closers or openers for wings, not otherwise provided for in this subclass

3/00 Closers or openers with braking devices, e.g. checks;

Construction of pneumatic or liquid braking devices

(construction of non-pneumatic or non-liquid braking devices E05F 5/00; friction devices in hinges E05D 11/00)

5/00 Braking devices, e.g. checks; Stops; Buffers

(construction of pneumatic or liquid braking devices E05F 3/00; combined with devices for holding wings open E05C 17/00; devices for limiting opening of wings or for holding wings open by a movable member extending between frame and wing E05C 17/00) [4]

7/00 Accessories for wings not provided for in other groups of this subclass (specially adapted for furniture A47B 95/00; door-lifters B66F, E04F 21/00; knobs or handles E05B) [2]

Operating mechanisms for wings [2]

9/00 Means for operating wings by hand rods not guided in or on the frame, including those which also operate the fastening (bolts or fastening devices for wings E05C)

11/00 Man-operated mechanisms for operating wings, including those which also operate the fastening

(connecting mechanisms for a plurality of wings E05F 17/00)

11/38 . for sliding windows, e.g. vehicle windows, to be opened or closed by vertical movement

13/00 Operating mechanisms for wings, operated by the movement or weight of a person or vehicle (through power-operated wing-operating mechanisms E05F 15/00)

15/00 Power-operated mechanisms for wings

15/10 . with rotary electromotors

15/12 . for swinging wings

15/14 . for horizontally-sliding wings

15/16 . for vertically-sliding wings

15/20 . controlled by automatically-acting means, e.g. by photocells, by electric waves, by thermostats, by rain, by fire

17/00 Special devices for shifting a plurality of wings operated simultaneously (for simultaneously moving a plurality of interconnected ventilating lamellae E06B 7/02) [2]

E05G SAFES OR STRONG-ROOMS FOR VALUABLES; BANK PROTECTION DEVICES; SAFETY TRANSACTION PARTITIONS (alarm arrangements per se G08B) [2]

Note

In this subclass, the following terms or expressions are used with the meanings indicated:

– “bank” is a building or portion of a building devoted to the safekeeping or exchange of valuables between the “bank” and its customers; [2]

– “bank protection device” is a mechanism in or on a bank for protecting the valuables or repelling attacks by stealth or force. [2]
1/00 Safes or strong-rooms for valuables (savings boxes A45C 1/00; floatable safes B63C 7/00; storage containers without attack or fire repellent features B65D; bank buildings in general, e.g. modular construction, floor plan, E04H 1/00; buildings resistant to earthquake or war action E04H 9/00)

5/00 Bank protection devices (E05G 1/00, E05G 7/00 take precedence; closed-circuit television systems H04N 7/18) [2]

7/00 Safety transaction partitions, e.g. movable payplates (non-safety paying counters, e.g. for supermarkets, A47F 9/00) [2]
E06B FIXED OR MOVABLE CLOSURES FOR OPENINGS IN BUILDINGS, VEHICLES, FENCES, OR LIKE ENCLOSURES, IN GENERAL, E.G. DOORS, WINDOWS, BLINDS, GATES (shades or blinds for greenhouses A01G 9/22; curtains A47H; lids for car boots or bonnets B62D 25/10; sky-light E04B 7/18; sunshades, awnings E04F 10/00)

(1) This subclass does not cover combinations of wings or frames with operating, mounting, latching or locking means of the type found in class E05, which are covered by the relevant subclasses of class E05, except such as are covered by groups E06B 7/02, E06B 9/00, or E06B 11/00 of this subclass. [2]

(2) In this subclass, the following terms or expressions are used with the meanings indicated:
- “wing” means a swingable, slideable or otherwise movable member such as a door or window, for closing an opening;
- “wing frame” means the peripheral edge or edges which define the outer border of the wing.

(3) For vehicle door or window arrangements, attention is drawn to Note (1) following the title of subclass B60J. [3]

Subclass index

<table>
<thead>
<tr>
<th>Element Type</th>
<th>Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>E06B Fixed or movable closures for openings</td>
<td>Frames to be rigidly mounted in such openings (E06B 5/00 takes precedence); features relating also to inner frames or wing frames, features relating solely to the mounting of inner frames E06B 3/00; corner joints or edge joints E06B 3/96 [4]</td>
<td>1/04</td>
</tr>
<tr>
<td>1/00</td>
<td>Frames for doors, windows, or the like to be fixed in openings (special adaptations for fixing in base frames E06B 1/00; features relating solely to the mounting of glass panes or other sheets E06B 3/00)</td>
<td>3/00</td>
</tr>
<tr>
<td>1/12</td>
<td>Metal frames</td>
<td>3/66</td>
</tr>
<tr>
<td>1/52</td>
<td>Frames specially adapted for doors</td>
<td>1/70</td>
</tr>
<tr>
<td>1/56</td>
<td>Fastening frames to the border of openings</td>
<td></td>
</tr>
<tr>
<td>1/62</td>
<td>Tightening or covering joints between the border of openings and the frame (E06B 1/04 takes precedence)</td>
<td></td>
</tr>
<tr>
<td>1/70</td>
<td>Sills; Thresholds</td>
<td></td>
</tr>
<tr>
<td>E06B Window sashes, door leaves, or like elements for closing openings</td>
<td>Fixing of more than one pane to a frame</td>
<td>3/64</td>
</tr>
<tr>
<td>3/00</td>
<td>Window sashes, door leaves, or like elements for closing openings; Layout of fixed or moving closures, e.g. windows; Features of rigidly-mounted outer frames relating to the mounting of wing frames (E06B 5/00 takes precedence; shutters or the like E06B 9/00; glass panes C03; uniting glass sheets by fusion C03B 23/00; joining glass to glass other than by fusing or to other inorganic material C03C 27/00)</td>
<td>3/02</td>
</tr>
<tr>
<td>3/02</td>
<td>Wings made completely of glass</td>
<td>3/04</td>
</tr>
<tr>
<td>3/04</td>
<td>Wing frames not characterised by the manner of movement (features relating to the manner of movement E06B 3/32)</td>
<td>3/30</td>
</tr>
<tr>
<td>3/30</td>
<td>Coverings, e.g. protecting against weather, for decorative purposes</td>
<td>3/32</td>
</tr>
<tr>
<td>3/32</td>
<td>Arrangements of wings characterised by the manner of movement; Arrangements of movable wings in openings; Features of wings or frames relating solely to the manner of movement of the wing [3]</td>
<td>3/54</td>
</tr>
<tr>
<td>3/54</td>
<td>Fixing of glass panes or like plates</td>
<td>3/58</td>
</tr>
<tr>
<td>3/58</td>
<td>by means of borders, cleats, or the like (E06B 3/64 takes precedence)</td>
<td></td>
</tr>
<tr>
<td>3/64</td>
<td>Fixing of more than one pane to a frame</td>
<td></td>
</tr>
</tbody>
</table>
Screening or protective devices for openings, with or without operating or securing mechanisms; Closures of similar construction (E06B 5/10 takes precedence; wings for doors or windows, connected at their edges, E06B 3/32; additional indoor equipment of doors or windows, not forming part of the proper finishing work of a building, e.g. curtains, A47H; gratings as building elements E04C 2/30; locks, accessories therefor E05B; bolts or fastening devices for wings E05C; operating mechanism for wings in general E05F)

- 9/01. Grilles fixed to walls, doors, or windows; Grilles moving with doors or windows; Walls formed as grilles, e.g. claustra
- 9/02. Shutters, movable grilles, or other safety closing devices, e.g. against burglary (louvre windows or gratilles E06B 7/02; lamellar blinds E06B 9/26)
- 9/06. Collapsible or foldable, e.g. of the bellows or lazy-tongs type (bellows-type doors E06B 3/00; roll-type grilles E06B 9/08)
- 9/08. Roll-type closures (roller blinds E06B 9/24; operating, guiding or securing devices or arrangements for roll-type closures E06B 9/56; usable only as awnings E04F 10/00) [5]
- 9/17. Parts or details of roller shutters, e.g. suspension devices, shutter boxes, wicket doors, ventilation openings [5]

Roller shutters [5]

Means for allowing passage through fences, barriers, or the like, e.g. stiles (general features of doors E06B 1/00 to E06B 9/00; turnstiles on vehicles B60N 5/00)

Ladders (E04F 11/00 takes precedence; step-stools A47C 12/00; adaptation of ladders to use on ships B63B, to use on aircraft B64; scaffolding E04G) [5,6]

Ladders in general (mounted on undercarriages or vehicles E06C 5/00; permanently attached to fixed structures E06C 9/00)

Ladders characterised by being mounted on undercarriages or vehicles; Securing ladders on vehicles (ladders having wheels, rollers, or runners E06C 1/00)

Component parts, supporting parts, or accessories

Ladders characterised by being permanently attached to fixed structures, e.g. fire escapes (movable stairways E04F 11/02)
EARTH OR ROCK DRILLING; MINING

E21  EARTH OR ROCK DRILLING; MINING

Note

In this class, the following term is used with the meaning indicated:
– “drilling” covers boring and vice versa.

E21B  EARTH OR ROCK DRILLING (mining, quarrying E21C; making shafts, driving galleries or tunnels E21D); OBTAINING OIL, GAS, WATER, SOLUBLE OR MELTABLE MATERIALS OR A SLURRY OF MINERALS FROM WELLS [5]

(1) This subclass covers: [7]
– primarily equipment for drilling of earth or rock in their natural formation; [7]
– similar equipment for drilling of man-made structures in situ, e.g. of road surfaces or concrete structures. [7]

(2) This subclass does not cover: [7]
– hand-held drilling machines, e.g. for domestic use; [7]
– drilling equipment for manufacturing operations, i.e. where an article is worked, e.g. for further processing; [7]
which are covered by relevant subclasses of section B, e.g. B23B; [7]
– compositions for drilling of boreholes or wells or for treating boreholes or wells, which compositions are covered by group C09K 8/00, e.g. compositions for enhanced recovery methods for obtaining hydrocarbons C09K 8/58. [8]

(3) Processes using enzymes or micro-organisms in order to: [8]
(i) liberate, separate or purify a pre-existing compound or composition, or to [8]
(ii) treat textiles or clean solid surfaces of materials [8]
are further classified in subclass C12S. [8]

Subclass index

METHODS OR APPARATUS FOR DRILLING ................................................................. 1/00 to 7/00
DRILLING TOOLS; ACCESSORIES THEREFOR ........................................... 10/00, 11/00;
12/00
OTHER EQUIPMENT OR DETAILS FOR DRILLING; WELL EQUIPMENT OR MAINTENANCE
Derricks; drilling rods or the like .................. 15/00; 17/00, 19/00

Methods or apparatus for drilling

1/00 Percussion drilling (drives used in the borehole E21B 4/00) [3]
3/00 Rotary drilling (drives used in the borehole E21B 4/00; rotary drilling machines in general B23B) [3]
4/00 Drives for drilling, used in the borehole (hydraulic turbines for drilling wells F03B 13/00) [3]
6/00 Drives for drilling with combined rotary and percussive action (drives used in the borehole E21B 4/00; portable percussive machines with superimposed rotation B25D 16/00) [3]
7/00 Special methods or apparatus for drilling (supports for the drilling machine, e.g. derricks or masts, E21B 15/00) [1,7]
7/02 Drilling rigs characterised by means for land transport, e.g. skid mounting or wheel mounting (portable drilling rigs for use on underwater floors E21B 7/12) [1,7]
7/04 Directional drilling

7/12 Underwater drilling (telescoping joints E21B 17/02; using heave compensators E21B 19/00; well heads specially adapted for underwater installations E21B 33/00) [1,7]
7/14 Drilling by use of heat, e.g. flame drilling
7/18 Drilling by liquid or gas jets, with or without entrained pellets (E21B 7/14 takes precedence; hydraulic monitors E21C 45/00) [5]
7/20 Driving or forcing casings or pipes into boreholes, e.g. sinking; Simultaneously drilling and casing boreholes (surface means for applying to-and-fro rotation movements to the casing E21B 3/00; placing piles E02D 7/00; sinking shafts while moving the lining downwards E21D 1/00) [3]

Drilling tools

10/00 Drill bits (specially adapted for deflecting the direction of boring E21B 7/04; with means for collecting substances E21B 27/00) [3,8]
10/08 Roller bits (roller core bits E21B 10/00; with leading portion E21B 10/26; characterised by wear resisting parts E21B 10/46) [3]
10/26 . Drill bits with leading portion, i.e. drill bits with a pilot cutter; Drill bits for enlarging the borehole, e.g. reamers (percussion drill bits with leading portion E21B 10/36; augers with leading portion E21B 10/00) [3]

10/36 . Percussion drill bits (characterised by wear resisting parts E21B 10/46) [3]

10/46 . characterised by wear resisting parts, e.g. diamond inserts [3]

11/00 Other drilling tools

12/00 Accessories for drilling tools [3]

Other equipment or details for drilling: Well equipment or well maintenance

15/00 Supports for the drilling machine, e.g. derricks or masts [1,7]

17/00 Drilling rods or pipes; Flexible drill strings; Kelles; Drill collars; Sucker rods; Casings; Tubings (drilling pipes with plural fluid passages for flushing boreholes E21B 21/00; rod couplings in general F16D; tubes or tube couplings in general F16L)

17/02 . Couplings; Joints

19/00 Handling rods, casings, tubes or the like outside the borehole, e.g. in the derrick: Apparatus for feeding the rods or cables (surface drives E21B 1/00, E21B 3/00)

21/00 Methods or apparatus for flushing boreholes, e.g. by use of exhaust air from motor (freeing objects stuck in boreholes by flushing E21B 31/00; well drilling compositions C09K 8/02) [2,7]

23/00 Apparatus for displacing, setting, locking, releasing or removing tools, packers or the like in boreholes or wells (setting of casings, screens, or liners E21B 43/02)

25/00 Apparatus for obtaining or removing undisturbed cores, e.g. core barrels, core extractors (core bits E21B 10/00; using explosives or projectiles in boreholes E21B 49/00; side-wall sampling or coring E21B 49/00)

27/00 Containers for collecting or depositing substances in boreholes or wells, e.g. bailers for collecting mud or sand; Drill bits with means for collecting substances, e.g. valve drill bits [6,8]

28/00 Vibration generating arrangements for boreholes or wells, e.g. for stimulating production (for drilling E21B 7/00; for transmitting measuring-signals E21B 47/12; for geophysical measurements G01V 1/02) [6]

29/00 Cutting or destroying pipes, packers, plugs, or wire lines, located in boreholes or wells, e.g. cutting of damaged pipes, of windows (perforators E21B 43/11); Deforming of pipes in boreholes or wells; Reconditioning of well casings while in the ground

31/00 Fishing for or freeing objects in boreholes or wells (provisions on well heads for introducing or removing objects E21B 33/03; locating or determining the position of objects in boreholes or wells E21B 47/00)

33/00 Sealing or packing boreholes or wells

33/02 . Surface sealing or packing

33/03 . . Well heads; Setting-up thereof (valve arrangements therefor E21B 34/00)

33/10 . in the borehole

33/12 . . Packers; Plugs (used for cementing E21B 33/13)

33/13 . . Methods or devices for cementing, for plugging holes, crevices, or the like (dump bailers E21B 27/00; chemical compositions therefor C09K 8/00) [1,8]

33/138 . . Plastering the borehole wall; Injecting into the formation

34/00 Valve arrangements for boreholes or wells (in drilling fluid circulation systems E21B 21/00; blow-out preventers E21B 33/03; oil flow regulating apparatus E21B 43/12; valves in general F16K) [3]

35/00 Methods or apparatus for preventing or extinguishing fires (cutting or deforming pipes to control fluid flow E21B 29/00; controlling flow of fluid to or in wells E21B 43/12; fire fighting in general A62C, A62D)

36/00 Heating, cooling, or insulating arrangements for boreholes or wells, e.g. for use in permafrost zones (drilling by use of heat E21B 7/14; secondary recovery methods using heat E21B 43/16) [3]

37/00 Methods or apparatus for cleaning boreholes or wells (E21B 21/00 takes precedence; cleaning pipes in general B08B 9/02)

40/00 Tubing catchers, automatically arresting the fall of oil-well tubing

41/00 Equipment or details not covered by groups E21B 15/00 to E21B 40/00

Obtaining fluids from wells [3]

43/00 Methods or apparatus for obtaining oil, gas, water, soluble or meltable materials or a slurry of minerals from wells (applicable only to water E03B; obtaining oil-bearing deposits or soluble or meltable materials by mining techniques E21C 41/00; pumps P04)

43/02 . Subsoil filtering (E21B 43/11 takes precedence; chemical compositions for consolidating loose sand or the like around wells C09K 8/50) [1,8]

43/11 . Perforators; Permeators

43/12 . Methods or apparatus for controlling the flow of the obtained fluid to or in wells (E21B 43/15 takes precedence; valve arrangements E21B 33/13)

43/16 . Enhanced recovery methods for obtaining hydrocarbons (fracturing E21B 43/25; obtaining slurry E21B 43/00; reclamation of contaminated soil in situ B09C)

43/25 . Methods for stimulating production (dump bailers E21B 27/00; vibration generating arrangements E21B 28/00; chemical compositions therefor C09K 8/60) [1,8]

43/34 . Arrangements for separating materials produced by the well (separating apparatus per se, see the relevant subclasses) [3]
### Automatic control; Surveying or testing [3]

44/00 Automatic control systems specially adapted for drilling operations, i.e. self-operating systems which function to carry out or modify a drilling operation without intervention of a human operator, e.g. computer-controlled drilling systems (for non-automatic drilling control, see the operation controlled; automatic feeding from rack and connecting of drilling pipes E21B 19/00; controlling pressure or flow of drilling fluid E21B 21/00); Systems specially adapted for monitoring a plurality of drilling variables or conditions (means for transmitting measuring-signals from the well to the surface E21B 47/12) [3]

Surveying or testing

45/00 Measuring the drilling time or rate of penetration

47/00 Survey of boreholes or wells (monitoring pressure or flow of drilling fluid E21B 21/00; geophysical logging G01V)

47/02 Determining slope or direction (clinometers or direction meters G01C)

47/04 Measuring depth or liquid level (measuring liquid level in general G01F)

47/06 Measuring temperature or pressure (measuring temperature in general G01K; measuring pressure in general G01L)

47/10 Locating fluid leaks, intrusions, or movements

47/12 Means for transmitting measuring-signals from the well to the surface, e.g. for logging while drilling (remote signalling in general G08)

49/00 Testing the nature of borehole walls; Formation testing; Methods or apparatus for obtaining samples of soil or well fluids, specially adapted to earth drilling or wells (apparatus for obtaining undisturbed cores E21B 25/00; sampling in general G01N 1/00)

### E21C MINING OR QUARRYING

#### Subclass index

**CUTTING; SLITTING; DISLODGING**

- General structure of machines .................................. 25/00, 27/00
- Details .................................................................. 29/00, 31/00, 35/00
- Other devices .......................................................... 33/00, 37/00, 39/00

**METHODS OF MINING OR QUARRYING;**

**OPEN-PIT MINING....................................................... 41/00, 45/00; 47/00, 49/00**

**OBTAINING MINERALS FROM**

**UNDERWATER .......................................................... 50/00**

**WINNING MATERIALS FROM**

**EXTRATERRESTRIAL SOURCES...................................... 51/00**

#### Cutting; Slitting; Dislodging

25/00 Cutting machines, i.e. for making slits approximately parallel or perpendicular to the seam (dislodging machines with slitting means E21C 27/00)

27/00 Machines which completely free the mineral from the seam (rods, drums, saws, discs or chains for making slits E21C 25/00)

29/00 Propulsion of machines for slitting or completely freeing the mineral from the seam

31/00 Driving means incorporated in machines for slitting or completely freeing the mineral from the seam

33/00 Trucks or other devices for transporting machines for slitting or completely freeing the mineral from the seam

35/00 Details of, or accessories for, machines for slitting or completely freeing the mineral from the seam, not provided for in groups E21C 25/00 to E21C 33/00, E21C 37/00 or E21C 39/00

37/00 Other methods or devices for dislodging with or without loading (breaking-down by means inserted in slits E21C 27/00)

39/00 Devices for testing in situ the hardness or other properties of minerals, e.g. for giving information as to the selection of suitable mining tools

#### Methods of mining or quarrying; Open-pit mining; Layouts therefor

41/00 Methods of underground or surface mining (E21C 45/00 takes precedence); Layouts therefor (for peat E21C 49/00) [5]

45/00 Methods of hydraulic mining; Hydraulic monitors (E21C 25/00 takes precedence) [5]

47/00 Machines for obtaining, or the removal of, materials in open-pit mines (obtaining peat E21C 49/00)

49/00 Obtaining peat; Machines therefor (treating peat C10F)

50/00 Obtaining minerals from underwater, not otherwise provided for (suction dredgers or component parts thereof E02F 3/88; equipment for conveying or separating excavated material E02F 7/00; dippers G01N 1/12) [5]

51/00 Apparatus for, or methods of, winning materials from extraterrestrial sources (cosmonautics B64G) [2]
E21D  SHAFTS; TUNNELS; GALLERIES; LARGE UNDERGROUND CHAMBERS (soil-conditioning or soil-stabilising materials C09K 17/00; cutting machines for mining or quarrying E21C; safety devices, transport, rescue, ventilation or drainage E21F) [2,6]

(1) This subclass covers methods or apparatus for making or lining tunnels, galleries or large underground chambers, using underground mining methods only, i.e. not involving disturbance of the ground surface. [6]

(2) This subclass does not cover underground spaces made by foundation engineering, i.e. involving disturbance of the ground surface, which are covered by subclass E02D. [6]

Subclass index

MAKING SHAFTS; LININGS THEREFOR.......................... 1/00, 3/00, 5/00
MAKING TUNNELS OR GALLERIES; LININGS THEREFOR.......................... 9/00, 11/00
MAKING UNDERGROUND CHAMBERS; LININGS THEREFOR.......................... 13/00, 11/00

Shafts

1/00 Sinking shafts
3/00 Raising shafts, i.e. working upwards from the bottom
5/00 Lining shafts; Linings therefor (E21D 11/00 takes precedence) [3]
7/00 Shaft equipment, e.g. timbering within the shaft
8/00 Shafts not provided for in groups E21D 1/00 to E21D 7/00 [8]

Tunnels; Galleries; Large underground chambers; Linings therefor [3,6]

9/00 Tunnels or galleries, with or without linings; Methods or apparatus for making thereof (linings see E21D 11/00; galleries protecting against falling rocks or avalanches E01F 7/00); Layout of tunnels or galleries [3]
9/04 . Driving tunnels or galleries through loose materials; Apparatus therefor not otherwise provided for
9/06 . Making by using a driving shield [2]
9/08 . with additional boring or cutting means [2]
9/10 . Making by using boring or cutting machines (E21D 9/08 takes precedence; similar machines for mining E21C 27/00; mining picks E21C 35/00) [3]
9/12 . Devices for removing or hauling away excavated material or spoil; Working or loading platforms (underground transport E21F 13/00) [2]
11/00 Lining tunnels, galleries or other underground cavities, e.g. large underground chambers; Linings therefor; Making such linings in situ, e.g. by assembling (E21D 15/00 to E21D 23/00 take precedence; specially for shafts E21D 5/00; lining pressure water galleries, linings therefor E02B 9/00) [2]
11/02 . Lining predominantly with wood [2]
11/04 . Lining with building materials (E21D 11/02, E21D 11/14 take precedence) [2]
11/08 . with preformed concrete slabs
11/10 . with concrete cast in situ; Shuttering or other equipment adapted therefor
11/14 . Lining predominantly with metal [2]
11/38 . Waterproofing (in general E02D 31/00); Heat insulating; Soundproofing; Electric insulating (for building constructions in general E04B 1/62) [2]
11/40 . Devices or apparatus specially adapted for handling or placing units of linings for tunnels or galleries [2]
13/00 Large underground chambers; Methods or apparatus for making them (lining E21D 11/00) [6]

Working-face supports

15/00 Props (in the building art E04G 25/00); Chocks
17/00 Caps for supporting mine roofs
19/00 Provisional protective covers for working space (E21D 9/06, E21D 23/00 take precedence) [3]
20/00 Setting anchoring-bolts (anchoring bolts for shafts, tunnels or galleries E21D 21/00; means for anchoring structural elements or bulkheads specially adapted to foundation engineering E02D 5/74; dowels or other devices fastened in walls or the like by inserting them in holes made therein for that purpose F16B 13/00) [5]
21/00 Anchoring-bolts for roof, floor, or shaft-lining protection (dowels or other devices fastened in walls or the like by inserting them in holes made therein for that purpose F16B 13/00) [5]
23/00 Mine roof supports for step-by-step movement, e.g. in combination with provisions for shifting of conveyers, mining machines, or guides therefor (shifting of mine conveyers at the working face, see E21F 13/00)
Subclass index

VENTILATION ................................................................. 1/00, 3/00
DRAINAGE ................................................................. 16/00
SAFETY DEVICES, RESCUE DEVICES .................. 5/00 to 11/00
TRANSPORT; FILLING-UP ...........................................13/00; 15/00
OTHER METHODS OR DEVICES ......................... 17/00

Ventilation of mines or tunnels

1/00 Ventilation of mines or tunnels; Distribution of
ventilating currents (ventilating rooms or spaces in
general F24F) [2]

3/00 Cooling or drying of air (air-conditioning rooms or
spaces in general F24F)

Safety devices; Rescue devices

5/00 Means or methods for preventing, binding,
depositing or removing dust; Preventing explosions
or fires (dams E21F 17/00; applying liquids or other
fluent materials to surfaces in general B05; flue-gas
indicators G01N) [6]

7/00 Methods or devices for drawing-off gases with or
without subsequent use of the gas for any purpose

9/00 Devices preventing sparking of machines or
apparatus (preventing sparking of electric machines or
apparatus H01K, H02K)

11/00 Rescue devices or other safety devices, e.g. safety
chambers, escape ways (breathing aids for curative
purposes A61H 31/00; respiratory apparatus A62B 7/00;
revival apparatus A62B 33/00)

13/00 Transport specially adapted to underground
conditions (mine cars B61D; transport in general,
loading B65G)

15/00 Methods or devices for placing filling-up materials in
underground workings (dams E21F 17/00) [6]

16/00 Drainage (keeping dry foundation sites or other areas in
the ground E02D 19/00) [2]

17/00 Methods or devices for use in mines or tunnels, not
covered elsewhere (mine lighting F21, H05B) [2]
E99Z

E99  SUBJECT MATTER NOT OTHERWISE PROVIDED FOR IN THIS SECTION [8]

E99Z  SUBJECT MATTER NOT OTHERWISE PROVIDED FOR IN THIS SECTION [8]

Note
This subclass covers subject matter that:
(a) is not provided for, but is most closely related to, the subject matter covered by the subclasses of this section, and
(b) is not explicitly covered by any subclass of another section.

99/00  Subject matter not otherwise provided for in this section [8]