

CPC COOPERATIVE PATENT CLASSIFICATION

E FIXED CONSTRUCTIONS

BUILDING

E02 HYDRAULIC ENGINEERING; FOUNDATIONS; SOIL SHIFTING

E02B HYDRAULIC ENGINEERING ([ship-lifting E02C](#); [dredging E02F](#))

WARNING

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

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| 1/00 | Equipment or apparatus for, or methods of, general hydraulic engineering {, e.g. protection of constructions against ice-strains (protection of offshore constructions against ice-loads E02B 17/0021; ice-structures as artificial islands E02B 17/028)} | 3/062 | . . . {Constructions floating in operational condition, e.g. breakwaters or wave dissipating walls (floating oil barriers E02B 15/08 ; floating stream regulating devices E02B 3/02)} |
| 1/003 | . {Mechanically induced gas or liquid streams in seas, lakes or water-courses for forming weirs or breakwaters; making or keeping water surfaces free from ice, aerating or circulating water, e.g. screens of air-bubbles against sludge formation or salt water entry, pump-assisted water circulation (moving sediments E02B 3/023 ; for ice breakers B63B 35/08 ; aerating or circulating water in fish-tanks A01K 63/042 ; purification of waste water with addition of air C02F ; distributing gases in liquids in general B01F 23/20)} | 3/064 | {Floating landing-stages (construction of pontoons B63B 35/34 ; landing bridges E01D 15/14)} |
| 1/006 | . {Arresting, diverting or chasing away fish in water-courses or water intake ducts, seas or lakes, e.g. fish barrages, deterrent devices (E02B 8/085 takes precedence); Devices for cleaning fish barriers} | 3/066 | . . . {Quays (bulkheads E02D 5/00 ; caissons E02D 23/00 ; retaining walls E02D 29/00)} |
| 1/02 | . Hydraulic models {(towing tanks or basins for model vessels B63B 71/20)} | 3/068 | . . . {Landing stages for vessels (floating landing-stages E02B 3/064 ; landing bridges E01D 15/14)} |
| 3/00 | Engineering works 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 works in general | 3/08 | . . . Structures of loose stones with or without piles (piles E02D 5/00) |
| 3/02 | . Stream regulation, e.g. breaking up subaqueous rock, cleaning the beds of waterways, directing the water flow ({harvesting water plants A01D 44/00 ; underwater loosening of soil or rocks for foundation construction E02D 17/16 }; dredging or scraping devices E02F 5/28) | 3/10 | . . Dams; Dykes; Sluice ways or other structures for dykes, dams, or the like (making embankments or dams in general E02D 17/18) |
| 3/023 | . . {Removing sediments (in barrages or reservoirs E02B 8/02)} | 3/102 | . . . {Permanently installed raisable dykes} |
| 3/026 | . . {Removing solid rocks} | 3/104 | {with self-activating means} |
| 3/04 | . Structures or apparatus for, or methods of, protecting banks, coasts, or harbours ({ E02B 1/003 takes precedence;} sealing or joints E02B 3/16) | 3/106 | . . . {Temporary dykes} |
| 3/041 | . . {using active mechanical means, e.g. fluidizing or pumping} | 3/108 | {with a filling, e.g. filled by water or sand} |
| 3/043 | . . {Artificial seaweed} | 3/12 | . . Revetment of banks, dams, watercourses, or the like, {e.g. the sea-floor}(of slopes in general E02D 17/20) |
| 3/046 | . . {Artificial reefs} | 3/121 | . . . {Devices for applying linings on banks or the water bottom (for lining canals E02B 5/02)} |
| 3/06 | . . Moles; Piers; Quay walls; Groynes; Breakwaters {Wave dissipating walls; Quay equipment} | 3/122 | . . . {Flexible prefabricated covering elements, e.g. mats, strips} |
| | | 3/123 | {mainly consisting of stone, concrete or similar stony material} |
| | | 3/124 | {mainly consisting of metal} |
| | | 3/125 | {mainly consisting of vegetable material, e.g. wood, reeds} |
| | | 3/126 | {mainly consisting of bituminous material or synthetic resins} |
| | | 3/127 | {bags filled at the side} |
| | | 3/128 | . . . {Coherent linings made on the spot, e.g. cast <u>in situ</u> , extruded on the spot (for canal linings E02B 5/02)} |
| | | 3/129 | . . . {Polyhedrons, tetrapods or similar bodies, whether or not threaded on strings} |
| | | 3/14 | . . . Preformed blocks {or slabs for forming essentially continuous surfaces}; Arrangements thereof {(preassembled to constitute flexible mats E02B 3/122 ; pavements E01C 5/00)} |

- 3/16 . Sealings or joints ({[E02B 3/12](#) takes precedence; sealings for specific structural foundation elements, [see](#) the relevant groups for those elements; sealings for barrage or lock gates [E02B 7/54](#)}; joints for foundation structures [E02D 29/16](#); sealing joints not restricted to hydraulic engineering work [E04B 1/68](#))
- 3/18 . Reclamation of land from water {or [marshes](#)}([drainage of soil E02B 11/00](#))
- 3/20 . 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 21/06](#); buoys [B63B 22/00](#) {; equipment specially adapted for use in locks or dry docks [E02C 1/10](#)})
- 3/24 . . Mooring posts
- 3/26 . . Fenders ({[fenders for protecting offshore constructions E02B 17/003](#)}; fenders integral with waterborne vessels or specially adapted therefor [B63B 59/02](#))
- 3/28 . . Fender piles
- 5/00 Artificial water canals, {e.g. [irrigation canals](#)} (for water-power plants [E02B 9/02](#); irrigation of soil [E02B 13/00](#))**
- 5/005 . {[Canals entirely situated above ground level, e.g. on piers \(canal bridges E01D 18/00\)](#)}
- 5/02 . Making or lining canals {(linings in general [E02B 13/02](#); digging canals [E02F](#))}
- 5/04 . Navigable canals
- 5/06 . . Operating equipment in connection with canals ([ship-lifting devices E02C](#))
- 5/08 . Details, e.g. gates, screens
- NOTE**
This subdivision is limited to closures, devices for arresting waterborne materials and divisors
- 5/082 . . {[Closures \(for irrigation conduits E02B 13/02\)](#)}
- 5/085 . . {[Arresting devices for waterborne materials, e.g. gratings \(fish barrages E02B 1/006; removing sediments E02B 3/023; arresting oil or similar pollutants E02B 15/08; for waste water purification E02F; in sewers E03F 5/14\)](#)}
- 5/087 . . {[Divisors](#)}
- 7/00 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 3/16](#); handling building or like materials for hydraulic engineering [E02D 15/00](#); foundations in general [E02D 27/00](#))**
- 7/005 . {[Deformable barrages or barrages consisting of permanently deformable elements, e.g. inflatable, with flexible walls \(closures E02B 7/54; floating oil barrages E02B 15/08\)](#)}
- 7/02 . Fixed barrages
- 7/04 . . Dams across valleys
- 7/06 . . . Earth-fill dams; Rock-fill dams
- 7/08 . . . Wall dams
- 7/10 Gravity dams, i.e. those in which the weight of the structure prevents overturning
- 7/12 Arch dams
- 7/14 Buttress dams
- 7/16 . Fixed weirs; Superstructures or flash-boards therefor
- 7/18 . . Siphon weirs ({[syphons in hydraulic engineering in general E02D 29/08](#)})
- 7/20 . Movable barrages; Lock {or dry-dock} gates
- 7/205 . . {[Barrages controlled by the variations of the water level; automatically functioning barrages \(level regulators G05D 9/00; the documents are filed in this subdivision and the relevant subdivision E02B 7/26 - E02B 7/50\)](#)}
- 7/22 . . Stop log dams; Emergency gates
- 7/24 . . Needle weirs
- 7/26 . . Vertical-lift gates
- 7/28 . . . with sliding gates
- 7/30 . . . with guide wheels or rollers for the gates
- 7/32 . . . Cylindrical or tubular gates
- 7/34 . . . Flash- boards for vertical-lift gates
- 7/36 . . . Elevating mechanisms for vertical-lift gates
- 7/38 . . Rolling gates {or [gates moving horizontally in their own plane, e.g. by sliding](#)}
- 7/40 . . Swinging or turning gates
- 7/42 . . . Gates of segmental or sector-like shape with horizontal axis
- 7/44 . . . Hinged-leaf gates
- 7/46 . . . Gates turning round a horizontal axis arranged midway of the flap
- 7/48 . . . Roof or double shutter gates
- 7/50 . . Floating gates
- 7/52 . . Equipment preventing vibration of gates
- 7/54 . . Sealings for gates
- 8/00 Details of barrages or weirs (cleaning or keeping clear the surface of open water [E02B 15/00](#)); {[Energy dissipating devices carried by lock or dry-dock gates](#)}**
- 8/02 . Sediment base gates; Sand sluices; Structures for retaining arresting waterborne material
- 8/023 . . {[Arresting devices for waterborne materials \(E02B 1/003 takes precedence; in artificial watercourses E02B 5/085; arresting oil or the like E02B 15/08; sieving devices for waste water purification C02F; in sewers E03F 5/14\)](#)}
- 8/026 . . . {[Cleaning devices \(for fish barrages E02B 1/006\)](#)}
- 8/04 . Valves, slides, or the like; {[Arrangements therefor;](#)} Submerged sluice gates
- 8/045 . . {[automatically movable](#)}
- 8/06 . Spillways; Devices for dissipation of energy, e.g. for reducing eddies {also for lock or dry-dock gates}
- 8/08 . Fish passes {or other means providing for migration of fish}; Passages for rafts or boats
- 8/085 . . {[Devices allowing fish migration, e.g. fish traps \(arresting or diverting fish exclusively E02B 1/006\)](#)}
- 9/00 Water-power plants; Layout, construction or equipment, methods of, or apparatus for, making same**
- 9/02 . Water-ways
- 9/022 . . {[Closures](#)}
- 9/025 . . . {[automatically movable](#)}
- 9/027 . . . {[Sliding closures \(E02B 9/025 takes precedence\)](#)}
- 9/04 . . Free-flow canals or flumes; Intakes ([gratings or screens therefor E02B 5/08](#))

- 9/06 . . . Pressure galleries or pressure conduits; Galleries specially adapted to house pressure conduits; Means specially adapted for use therewith, e.g. housings, valves, gates ([driving inclined galleries E21D 9/02](#); valves in general [F16K](#); conduits in general [F16L](#))
- 9/08 . . . Tide or wave power plants ([water-pressure machines, tide or wave motors F03B](#))
- 11/00 Drainage of soil, e.g. for agricultural purposes** [{\(draining sports grounds E01C 13/083; for consolidating foundation soil, e.g. sand drain piles E02D 3/10\)}](#)
- 11/005 . . . {[Drainage conduits](#)}
- 11/02 . . . Drainage device- laying apparatus, e.g. drainage ploughs
- WARNING**
- Group [E02B 11/02](#) is incomplete, see also [E02F 3/00](#) and [E02F 5/00](#), dredgers and soil-shifting machines
- 13/00 Irrigation ditches, i.e. gravity flow, open channel water distribution systems** [\({retaining waterborne material in irrigation canals E02B 5/085; other distribution systems for watering or spraying gardens, fields, sports grounds, or the like, A01G 25/00; {built-in irrigation means for sports grounds E01C 13/083}\)](#)
- 13/02 . . . Closures for irrigation conduits
- 15/00 Cleaning or keeping clear the surface of open water; Apparatus therefor** [\(construction of ships or other waterborne vessels B63B, e.g. vessels specially adapted for collecting pollution from open water B63B 35/32; in swimming or splash baths or pools E04H 4/16\)](#)
- 2015/005 . . . {[Tent-like structures for dealing with pollutant emissions below the water surface](#)}
- 15/02 . . . from ice [{otherwise than according to E02B 1/003}](#) [\(construction of ships B63B; {ice-breakers or amphibious vehicles B63B 35/08; protecting hydraulic engineering structures against ice-load E02B 1/00}\)](#)
- 15/04 . . . Devices for cleaning or keeping clear the surface of open water from oil or like floating materials by separating or removing these materials [\({stopping water-borne material in artificial water canals E02B 5/085; stopping water-borne material at barrages or weirs E02B 8/023; other treatment of water, waste water or sewage C02F; materials for treating liquid pollutants, e.g. oil, gasoline, fat, C09K 3/32 ; separation of oil in sewage conduits E03F 5/16}\)](#)
- 15/041 . . . {[Devices for distributing materials, e.g. absorbed or magnetic particles over a surface of open water to remove the oil, with or without means for picking up the treated oil \(E02B 15/042 takes precedence\)](#)}
- 15/042 . . . {[Devices for removing the oil by combustion with or without means for picking up the oil](#)}
- 15/043 . . . {[Devices or methods for removing oil by means of freezing](#)}
- 15/045 . . . {[Separating means for recovering oil floating on a surface of open water \(E02B 15/048 takes precedence; separation in general B01D\)](#)}
- 15/046 . . . {[Collection of oil using vessels, i.e. boats, barges](#)}
- 15/047 . . . {[provided with an oil collecting boom arranged on at least one side of the hull](#)}
- 15/048 . . . {[Oil collectors moved over the water skimming the water surface](#)}
- 15/06 . . . Barriers therefor ([E02B 15/08 takes precedence](#)) [{construed for applying processing agents or for collecting pollutants, e.g. absorbent}](#)
- 15/08 . . . Devices for reducing the polluted area [{with or without {additional devices for} removing the material](#)
- 15/0807 . . . {[with stabilising elements](#)}
- 15/0814 . . . {[with underwater curtains](#)}
- 15/0821 . . . {[adapted for protection against fire or extreme heat](#)}
- 15/0828 . . . {[fixed to the side of a boat for containing small leaks in the hull](#)}
- 15/0835 . . . {[fixed to permanent structure, e.g. harbour wall or river bank](#)}
- 15/0842 . . . {[adapted to be towed for operation](#)}
- 15/085 . . . {[Details of connectors](#)}
- 15/0857 . . . {[Buoyancy material](#)}
- 15/0864 {[Air \(E02B 15/0878 takes precedence\)](#)}
- 15/0871 {[self-inflating barriers](#)}
- 15/0878 {[Air and water](#)}
- 15/0885 {[Foam](#)}
- 15/0892 {[using expanded polystyrene foam](#)}
- 15/10 . . . Devices for removing the material from the surface [{\(E02B 15/041, E02B 15/042, E02B 15/06 take precedence\)}](#)
- 15/101 . . . {[Means floating loosely on the water absorbing the oil \(absorbing materials C02F\)](#)}
- 15/102 . . . {[Discs](#)}
- 15/103 . . . {[Rotary drums](#)}
- 15/104 . . . {[Conveyors; Paddle wheels; Endless belts \(E02B 15/101 takes precedence\)](#)}
- 15/105 . . . {[Archimedian screws](#)}
- 15/106 . . . {[Overflow skimmers with suction heads; suction heads](#)}
- 15/107 . . . {[Whirling means forming a vortex in the water; cyclones](#)}
- 15/108 . . . {[Ejection means](#)}
- 17/00 Artificial islands mounted on piles or like supports, e.g. platforms on raisable legs {or offshore constructions}; Construction methods therefor** [\({construction methods for floating platforms B63B 75/00; anchoring floating platforms B63B 21/00; floating platforms, e.g. anchored, B63B 35/44; {underwater reservoirs B65D 88/78}\)](#)
- 17/0004 . . . {[Nodal points](#)}
- 17/0008 . . . {[Methods for grouting offshore structures; apparatus therefor \(cementing boreholes E21B 33/13\)](#)}
- 17/0013 . . . {[Tube closures for releasable sealing hollow tubes](#)}
- 17/0017 . . . {[Means for protecting offshore constructions](#)}
- 17/0021 . . . {[against ice-loads](#)}
- 17/0026 . . . {[against corrosion](#)}
- 17/003 . . . {[Fenders](#)}
- 17/0034 . . . {[Maintenance, repair or inspection of offshore constructions](#)}
- 2017/0039 . . . {[Methods for placing the offshore structure](#)}
- 2017/0043 . . . {[Placing the offshore structure on a pre-installed foundation structure](#)}
- 2017/0047 . . . {[using a barge](#)}

- 2017/0052 . {Removal or dismantling of offshore structures from their offshore location}
- 2017/0056 . {Platforms with supporting legs}
- 2017/006 . . {with lattice style supporting legs}
- 2017/0065 . . {Monopile structures}
- 2017/0069 . . {Gravity structures}
- 2017/0073 . . {Details of sea bottom engaging footing}
- 2017/0078 . . . {Suction piles, suction cans}
- 2017/0082 . . . {Spudcans, skirts or extended feet}
- 2017/0086 . . . {Large footings connecting several legs or serving as a reservoir for the storage of oil or gas}
- 2017/0091 . {Offshore structures for wind turbines}
- 2017/0095 . {Connections of subsea risers, piping or wiring with the offshore structure}
- 17/02 . placed by lowering the supporting construction to the bottom, e.g. with subsequent fixing thereto
- 17/021 . . {with relative movement between supporting construction and platform}
- 17/022 . . . {adapted to travel on the bottom ([walking gears moving dredgers forward step-by-step E02F 9/04](#))}
- 17/024 . . . {shock absorbing means for the supporting construction}
- 17/025 . . {Reinforced concrete structures ([E02B 17/021 takes precedence](#))}
- 17/027 . . {steel structures ([E02B 17/021 takes precedence](#))}
- 17/028 . . {Ice-structures}
- 17/04 . Equipment specially adapted for raising, lowering, or immobilising the working platform relative to the supporting construction ([platform lifts in general B66F 7/00](#))
- 17/06 . . for immobilising, e.g. using wedges or clamping rings {(as [elements of the raising or lowering means E02B 17/08](#))}
- 17/08 . . for raising or lowering
- 17/0809 . . . {the equipment being hydraulically actuated ([outriggers for cranes B66C 23/80](#))}
- 17/0818 . . . {with racks actuated by pinions ([lifting jacks B66F 3/02 - B66F 3/06](#))}
- 17/0827 . . . {with screws and nuts mechanism ([climbing jacks with following nut E02B 17/0881; lifting jacks B66C 3/08](#))}
- 17/0836 . . . {with climbing jacks ([climbing cranes B66C 23/32; hydraulic lifting jacks B66F 3/24 and subgroups](#))}
- 17/0845 {with inflatable clamping rings}
- 17/0854 {with clamping wedges, eccentric clamping devices and so on ([catch devices for elevators B66B 5/20, B66B 5/24, B66B 5/26](#))}
- 17/0863 {with rack and pawl mechanism}
- 17/0872 {with locking pins engaging holes or cam surfaces}
- 17/0881 {with following nuts}
- 17/089 {with substantiation blocks, feet and so on}
- 2201/00** **Devices, constructional details or methods of hydraulic engineering not otherwise provided for**
- 2201/02 . Devices and methods for creating a buffer zone in the water to separate, e.g. salt and sweet water
- 2201/04 . using old tires for hydraulic engineering
- 2201/50 . Devices for sequentially discharging constant liquid quantities, e.g. into different irrigation channels