

# 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.

- |       |  |       |  |
|-------|--|-------|--|
| 1/00  | <b>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 <a href="#">E02B 17/0021</a>; ice-structures as artificial islands <a href="#">E02B 17/028</a>)}</b>   | 3/062 | . . . {Constructions floating in operational condition, e.g. breakwaters or wave dissipating walls (floating oil barriers <a href="#">E02B 15/08</a> ; floating stream regulating devices <a href="#">E02B 3/02</a> )} |
| 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 <a href="#">E02B 3/023</a> ; for ice breakers <a href="#">B63B 35/08</a> ; aerating or circulating water in fish-tanks <a href="#">A01K 63/042</a> ; purification of waste water with addition of air <a href="#">C02F</a> ; distributing gases in liquids in general <a href="#">B01F 23/20</a> )} | 3/064 | . . . . {Floating landing-stages (construction of pontoons <a href="#">B63B 35/34</a> ; landing bridges <a href="#">E01D 15/14</a> )}  |
| 1/006 | . {Arresting, diverting or chasing away fish in water-courses or water intake ducts, seas or lakes, e.g. fish barrages, deterrent devices ( <a href="#">E02B 8/085</a> takes precedence); Devices for cleaning fish barriers}  | 3/066 | . . . {Quays (bulkheads <a href="#">E02D 5/00</a> ; caissons <a href="#">E02D 23/00</a> ; retaining walls <a href="#">E02D 29/00</a> )}  |
| 1/02  | . Hydraulic models {(towing tanks or basins for model vessels <a href="#">B63B 71/20</a> )}  | 3/068 | . . . {Landing stages for vessels (floating landing-stages <a href="#">E02B 3/064</a> ; landing bridges <a href="#">E01D 15/14</a> )}  |
| 3/00  | <b>Engineering works in connection with control or use of streams, rivers, coasts, or other marine sites (barrages or weirs <a href="#">E02B 7/00</a>); Sealings or joints for engineering works in general</b>  | 3/08  | . . . Structures of loose stones with or without piles (piles <a href="#">E02D 5/00</a> )  |
| 3/02  | . Stream regulation, e.g. breaking up subaqueous rock, cleaning the beds of waterways, directing the water flow ({harvesting water plants <a href="#">A01D 44/00</a> ; underwater loosening of soil or rocks for foundation construction <a href="#">E02D 17/16</a> }; dredging or scraping devices <a href="#">E02F 5/28</a> )  | 3/10  | . . Dams; Dykes; Sluice ways or other structures for dykes, dams, or the like (making embankments or dams in general <a href="#">E02D 17/18</a> )  |
| 3/023 | . . {Removing sediments (in barrages or reservoirs <a href="#">E02B 8/02</a> )}  | 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 ({ <a href="#">E02B 1/003</a> takes precedence;} sealing or joints <a href="#">E02B 3/16</a> )   | 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 <a href="#">E02D 17/20</a> )  |
| 3/046 | . . {Artificial reefs}   | 3/121 | . . . {Devices for applying linings on banks or the water bottom (for lining canals <a href="#">E02B 5/02</a> )}   |
| 3/06  | . Moles; Piers; Quays; 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 <a href="#">in situ</a> , extruded on the spot (for canal linings <a href="#">E02B 5/02</a> )}   |
|       |  | 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 <a href="#">E02B 3/122</a> ; pavements <a href="#">E01C 5/00</a> )}     |

- 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	<ul style="list-style-type: none"> <li>Pressure galleries or pressure conduits; Galleries specially adapted to house pressure conduits; Means specially adapted for use therewith, e.g. housings, valves, gates (<a href="#">driving inclined galleries E21D 9/02</a>; valves in general <a href="#">F16K</a>; conduits in general <a href="#">F16L</a>)</li> </ul>	15/047	<ul style="list-style-type: none"> <li>{provided with an oil collecting boom arranged on at least one side of the hull}</li> </ul>
9/08	<ul style="list-style-type: none"> <li>Tide or wave power plants (<a href="#">water-pressure machines, tide or wave motors F03B</a>)</li> </ul>	15/048	<ul style="list-style-type: none"> <li>{Oil collectors moved over the water skimming the water surface}</li> </ul>
11/00	<b>Drainage of soil, e.g. for agricultural purposes</b> {(draining sports grounds <a href="#">E01C 13/083</a> ; for consolidating foundation soil, e.g. sand drain piles <a href="#">E02D 3/10</a> )}	15/06	<ul style="list-style-type: none"> <li>Barriers therefor (<a href="#">E02B 15/08</a> takes precedence){construed for applying processing agents or for collecting pollutants, e.g. absorbent}</li> </ul>
11/005	<ul style="list-style-type: none"> <li>{Drainage conduits}</li> </ul>	15/08	<ul style="list-style-type: none"> <li>Devices for reducing the polluted area {with or without {additional devices for} removing the material}</li> </ul>
11/02	<ul style="list-style-type: none"> <li>Drainage device- laying apparatus, e.g. drainage ploughs</li> </ul> <p><b>WARNING</b></p> <p>Group <a href="#">E02B 11/02</a> is incomplete, see also <a href="#">E02F 3/00</a> and <a href="#">E02F 5/00</a>, dredgers and soil-shifting machines</p>	15/0807	<ul style="list-style-type: none"> <li>{with stabilising elements}</li> </ul>
13/00	<b>Irrigation ditches, i.e. gravity flow, open channel water distribution systems</b> ({retaining waterborne material in irrigation canals <a href="#">E02B 5/085</a> }; other distribution systems for watering or spraying gardens, fields, sports grounds, or the like, <a href="#">A01G 25/00</a> ; {built-in irrigation means for sports grounds <a href="#">E01C 13/083</a> })	15/0814	<ul style="list-style-type: none"> <li>{with underwater curtains}</li> </ul>
13/02	<ul style="list-style-type: none"> <li>Closures for irrigation conduits</li> </ul>	15/0821	<ul style="list-style-type: none"> <li>{adapted for protection against fire or extreme heat}</li> </ul>
15/00	<b>Cleaning or keeping clear the surface of open water; Apparatus therefor</b> (construction of ships or other waterborne vessels <a href="#">B63B</a> , e.g. vessels specially adapted for collecting pollution from open water <a href="#">B63B 35/32</a> ; in swimming or splash baths or pools <a href="#">E04H 4/16</a> )	15/0828	<ul style="list-style-type: none"> <li>{fixed to the side of a boat for containing small leaks in the hull}</li> </ul>
2015/005	<ul style="list-style-type: none"> <li>{Tent-like structures for dealing with pollutant emissions below the water surface}</li> </ul>	15/0835	<ul style="list-style-type: none"> <li>{fixed to permanent structure, e.g. harbour wall or river bank}</li> </ul>
15/02	<ul style="list-style-type: none"> <li>from ice {otherwise than according to <a href="#">E02B 1/003</a>}(construction of ships <a href="#">B63B</a>; {ice-breakers or amphibious vehicles <a href="#">B63B 35/08</a>; protecting hydraulic engineering structures against ice-load <a href="#">E02B 1/00</a>})</li> </ul>	15/0842	<ul style="list-style-type: none"> <li>{adapted to be towed for operation}</li> </ul>
15/04	<ul style="list-style-type: none"> <li>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 <a href="#">E02B 5/085</a>; stopping water-borne material at barrages or weirs <a href="#">E02B 8/023</a>}; other treatment of water, waste water or sewage <a href="#">C02F</a>; materials for treating liquid pollutants, e.g. oil, gasoline, fat, <a href="#">C09K 3/32</a> {; separation of oil in sewage conduits <a href="#">E03F 5/16</a>})</li> </ul>	15/085	<ul style="list-style-type: none"> <li>{Details of connectors}</li> </ul>
15/041	<ul style="list-style-type: none"> <li>{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 (<a href="#">E02B 15/042</a> takes precedence)}</li> </ul>	15/0857	<ul style="list-style-type: none"> <li>{Buoyancy material}</li> </ul>
15/042	<ul style="list-style-type: none"> <li>{Devices for removing the oil by combustion with or without means for picking up the oil}</li> </ul>	15/0864	<ul style="list-style-type: none"> <li>{Air (<a href="#">E02B 15/0878</a> takes precedence)}</li> </ul>
15/043	<ul style="list-style-type: none"> <li>{Devices or methods for removing oil by means of freezing}</li> </ul>	15/0871	<ul style="list-style-type: none"> <li>{self-inflating barriers}</li> </ul>
15/045	<ul style="list-style-type: none"> <li>{Separating means for recovering oil floating on a surface of open water (<a href="#">E02B 15/048</a> takes precedence; separation in general <a href="#">B01D</a>)}</li> </ul>	15/0878	<ul style="list-style-type: none"> <li>{Air and water}</li> </ul>
15/046	<ul style="list-style-type: none"> <li>{Collection of oil using vessels, i.e. boats, barges}</li> </ul>	15/0885	<ul style="list-style-type: none"> <li>{Foam}</li> </ul>
		15/0892	<ul style="list-style-type: none"> <li>{using expanded polystyrene foam}</li> </ul>
		15/10	<ul style="list-style-type: none"> <li>Devices for removing the material from the surface {(<a href="#">E02B 15/041</a>, <a href="#">E02B 15/042</a>, <a href="#">E02B 15/06</a> take precedence)}</li> </ul>
		15/101	<ul style="list-style-type: none"> <li>{Means floating loosely on the water absorbing the oil (absorbing materials <a href="#">C02F</a>)}</li> </ul>
		15/102	<ul style="list-style-type: none"> <li>{Discs}</li> </ul>
		15/103	<ul style="list-style-type: none"> <li>{Rotary drums}</li> </ul>
		15/104	<ul style="list-style-type: none"> <li>{Conveyors; Paddle wheels; Endless belts (<a href="#">E02B 15/101</a> takes precedence)}</li> </ul>
		15/105	<ul style="list-style-type: none"> <li>{Archimedian screws}</li> </ul>
		15/106	<ul style="list-style-type: none"> <li>{Overflow skimmers with suction heads; suction heads}</li> </ul>
		15/107	<ul style="list-style-type: none"> <li>{Whirling means forming a vortex in the water; cyclones}</li> </ul>
		15/108	<ul style="list-style-type: none"> <li>{Ejection means}</li> </ul>
		17/00	<b>Artificial islands mounted on piles or like supports, e.g. platforms on raisable legs {or offshore constructions}; Construction methods therefor</b> ({construction methods for floating platforms <a href="#">B63B 75/00</a> ; anchoring floating platforms <a href="#">B63B 21/00</a> ; floating platforms, e.g. anchored, <a href="#">B63B 35/44</a> ; {underwater reservoirs <a href="#">B65D 88/78</a> })
		17/0004	<ul style="list-style-type: none"> <li>{Nodal points}</li> </ul>
		17/0008	<ul style="list-style-type: none"> <li>{Methods for grouting offshore structures; apparatus therefor (cementing boreholes <a href="#">E21B 33/13</a>)}</li> </ul>
		17/0013	<ul style="list-style-type: none"> <li>{Tube closures for releasable sealing hollow tubes}</li> </ul>
		17/0017	<ul style="list-style-type: none"> <li>{Means for protecting offshore constructions}</li> </ul>
		17/0021	<ul style="list-style-type: none"> <li>{against ice-loads}</li> </ul>
		17/0026	<ul style="list-style-type: none"> <li>{against corrosion}</li> </ul>
		17/003	<ul style="list-style-type: none"> <li>{Fenders}</li> </ul>
		17/0034	<ul style="list-style-type: none"> <li>{Maintenance, repair or inspection of offshore constructions}</li> </ul>
		2017/0039	<ul style="list-style-type: none"> <li>{Methods for placing the offshore structure}</li> </ul>
		2017/0043	<ul style="list-style-type: none"> <li>{Placing the offshore structure on a pre-installed foundation structure}</li> </ul>
		2017/0047	<ul style="list-style-type: none"> <li>{using a barge}</li> </ul>

- 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 subtenation 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