

CPC COOPERATIVE PATENT CLASSIFICATION

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

- 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](#))}
- 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 3/04](#))}
- 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}
- 1/02** . Hydraulic models {(towing tanks or basins for model vessels [B63B 9/02](#))}
- 3/00** Engineering works in connection with control or use of streams, rivers, coasts, or other marine sites (barrages or weirs [E02B 7/00](#)); Sealing or joints for engineering works in general
- 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](#))
- 3/023** . . {Removing sediments (in barrages or reservoirs [E02B 8/02](#))}
- 3/026** . . {Removing solid rocks}
- 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](#))
- 3/041** . . {using active mechanical means, e.g. fluidizing or pumping}
- 3/043** . . {Artificial seaweed}
- 3/046** . . {Artificial reefs}
- 3/06** . . Moles; Piers; Quay walls; Groynes; Breakwaters {Wave dissipating walls; Quay equipment}
- 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](#))}
- 3/064** {Floating landing-stages (construction of pontoons [B63B 35/34](#); landing bridges [E01D 15/14](#))}
- 3/066** . . . {Quays (bulkheads [E02D 5/00](#); caissons [E02D 23/00](#); retaining walls [E02D 29/00](#))}
- 3/068** . . . {Landing stages for vessels (floating landing-stages [E02B 3/064](#); landing bridges [E01D 15/14](#))}
- 3/08** . . . Structures of loose stones with or without piles ([piles E02D 5/00](#))
- 3/10** . . Dams; Dykes; Sluice ways or other structures for dykes, dams, or the like (making embankments or dams in general [E02D 17/18](#))
- 3/102** {Permanently installed raisable dykes}
- 3/104** {with self-activating means}
- 3/106** {Temporary dykes}
- 3/108** {with a filling, e.g. filled by water or sand}
- 3/12** . . Revetment of banks, dams, water-courses, or the like, {e.g. the sea-floor} (of slopes in general [E02D 17/20](#))
- 3/121** . . . {Devices for applying linings on banks or the water bottom (for lining canals [E02B 5/02](#))}
- 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 *in situ*, 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 vallies
 - 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	15/10	. . Devices for removing the material from the surface { (E02B 15/041 , E02B 15/042 , E02B 15/06 take precedence) }
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)	15/101	. . . {Means floating loosely on the water absorbing the oil (absorbing materials C02F) }
2015/005	. {Tent-like structures for dealing with pollutant emissions below the water surface }	15/102	. . . {Discs }
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) }	15/103	. . . {Rotary drums }
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 }) }	15/104	. . . {Conveyors; Paddle wheels; Endless belts (E02B 15/101 takes precedence) }
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) }	15/105	. . . {Archimedian screws }
15/042	. . {Devices for removing the oil by combustion with or without means for picking up the oil }	15/106	. . . {Overflow skimmers with suction heads; suction heads }
15/043	. . {Devices or methods for removing oil by means of freezing }	15/107	. . . {Whirling means forming a vortex in the water; cyclones }
15/045	. . {Separating means for recovering oil floating on a surface of open water (E02B 15/048 takes precedence; separation in general B01D) }	15/108	. . . {Ejection means }
15/046	. . {Collection of oil using vessels, i.e. boats, barges }	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 9/065 } ; anchoring floating platforms B63B 21/00; floating platforms, e.g. anchored, B63B 35/44; {underwater reservoirs B65D 88/78 }) }
15/047	. . . {provided with an oil collecting boom arranged on at least one side of the hull }	17/0004	. {Nodal points }
15/048	. . {Oil collectors moved over the water skimming the water surface }	17/0008	. {Methods for grouting offshore structures; apparatus therefor (cementing boreholes E21B 33/13) }
15/06	. . Barriers therefor (E02B 15/08 takes precedence) {construed for applying processing agents or for collecting pollutants, e.g. absorbent }	17/0013	. {Tube closures for releasable sealing hollow tubes }
15/08	. . Devices for reducing the polluted area {with or } without {additional devices for } removing the material	17/0017	. {Means for protecting offshore constructions }
15/0807	. . . {with stabilising elements }	17/0021	. . {against ice-loads }
15/0814	. . . {with underwater curtains }	17/0026	. . {against corrosion }
15/0821	. . . {adapted for protection against fire or extreme heat }	17/003	. . {Fenders }
15/0828	. . . {fixed to the side of a boat for containing small leaks in the hull }	17/0034	. {Maintenance, repair or inspection of offshore constructions }
15/0835	. . . {fixed to permanent structure, e.g. harbour wall or river bank }	2017/0039	. {Methods for placing the offshore structure }
15/0842	. . . {adapted to be towed for operation }	2017/0043	. . {Placing the offshore structure on a pre-installed foundation structure }
15/085	. . . {Details of connectors }	2017/0047	. . {using a barge }
15/0857	. . . {Buoyancy material }	2017/0052	. {Removal or dismantling of offshore structures from their offshore location }
15/0864	. . . . {Air (E02B 15/0878 takes precedence) }	2017/0056	. {Platforms with supporting legs }
15/0871	. . . . . {self-inflating barriers }	2017/006	. . {with lattice style supporting legs }
15/0878	. . . . {Air and water }	2017/0065	. . {Monopile structures }
15/0885	. . . . {Foam }	2017/0069	. . {Gravity structures }
15/0892	. . . . . {using expanded polystyrene foam }	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) }

E02B

- 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 substantation 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