

CPC**COOPERATIVE PATENT CLASSIFICATION****E02B****HYDRAULIC ENGINEERING** (ship-lifting [E02C](#); dredging [E02F](#))**WARNING**

[C12.08]

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[E02B 15/06](#) covered by [E02B 15/04B2](#)

[E02B 15/08](#) covered by [E02B 15/04B](#)

[E02B 15/10](#) covered by [E02B 15/04C](#) to [E02B 15/04G](#)

E02B 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](#)) }

E02B 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](#)) }

E02B 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 }

E02B 1/02

- . Hydraulic models { towing tanks or basins for model vessels [B63B 9/02](#) }

E02B 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

E02B 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](#))

E02B 3/023

- .. { Removing sediments (in barrages or reservoirs [E02B 8/02](#)) }

E02B 3/026

- .. { Removing solid rocks }

E02B 3/04

- . Structures or apparatus for, or methods of, protecting banks, coasts, or harbours (sealings or joints [E02B 3/16](#); { [E02B 1/003](#) takes precedence })

E02B 3/043

- .. { Artificial seaweed }

E02B 3/046

- .. { Artificial reefs }

E02B 3/06

- .. Moles; Piers; Quay walls; Groynes; Breakwaters { Wave dissipating walls; Quay equipment }

E02B 3/062

- ... { Constructions floating in operational condition, e.g. breakwaters or wave

		dissipating walls (floating oil barriers E02B 15/04B ; floating stream regulating devices E02B 3/02)}
E02B 3/064	....	{ Floating landing-stages (construction of pontoons B63B 35/34 ; landing bridges E01D 15/14)}
E02B 3/066	...	{ Quays (bulkheads E02D 5/00 ; caissons E02D 23/00 ; retaining walls E02D 29/00)}
E02B 3/068	...	{ Landing stages for vessels (floating landing-stages E02B 3/064 ; landing bridges E01D 15/14)}
E02B 3/08	...	Structures of loose stones with or without piles (piles E02D 5/00)
E02B 3/10	..	Dams; Dykes; Sluice ways or other structures for dykes, dams, or the like (making embankments or dams in general E02D 17/18)
E02B 3/102	...	{ Permanently installed raisable dykes }
E02B 3/104	....	{ with self-activating means }
E02B 3/106	...	{ Temporary dykes }
E02B 3/108	....	{ with a filling, e.g. filled by water or sand }
E02B 3/12	..	Revetment of banks, dams, water-courses, or the like, { e.g. the sea-floor } (of slopes in general E02D 17/20)
E02B 3/121	...	{ Devices for applying linings on banks or the water bottom (for lining canals E02B 5/02)}
E02B 3/122	...	{ Flexible prefabricated covering elements, e.g. mats, strips }
E02B 3/123	....	{ mainly consisting of stone, concrete or similar stony material }
E02B 3/124	....	{ mainly consisting of metal }
E02B 3/125	....	{ mainly consisting of vegetable material, e.g. wood, reeds }
E02B 3/126	....	{ mainly consisting of bituminous material or synthetic resins }
E02B 3/127	....	{ bags filled at the side }
E02B 3/128	...	{ Coherent linings made on the spot, e.g. cast in situ, extruded on the spot (for canal linings E02B 5/02)}
E02B 3/129	...	{ Polyhedrons, tetrapods or similar bodies, whether or not threaded on strings }
E02B 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)}
E02B 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)
E02B 3/18	.	Reclamation of land from water { or marshes } (drainage of soil E02B 11/00)
E02B 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)}
E02B 3/24	..	Mooring posts
E02B 3/26	..	Fenders ({ fenders for protecting offshore constructions E02B 17/003 }; fenders integral with waterborne vessels or specially adapted therefor B63B 59/02)
E02B 3/28	..	Fender piles
E02B 5/00		Artificial water canals, { e.g. irrigation canals } (for water-power plants E02B 9/02; irrigation of soil E02B 13/00)

- E02B 5/005 . { Canals entirely situated above ground level, e.g. on piers (canal bridges [E01D 18/00](#)) }
- E02B 5/02 . Making or lining canals { (linings in general [E02B 13/02](#); digging canals [E02F](#)) }
- E02B 5/04 . Navigable canals
- E02B 5/06 . . Operating equipment in connection with canals (ship-lifting devices [E02C](#))
- E02B 5/08 . Details, e.g. gates, screens

NOTE

This subdivision is limited to closures, devices for arresting waterborne materials and divisors

- E02B 5/082 . . { Closures (for irrigation conduits [E02B 13/02](#)) }
- E02B 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 15/04B](#); for waste water purification [E02E](#); in sewers [E03F 5/14](#)) }
- E02B 5/087 . . { Divisors }

E02B 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](#))

- E02B 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 15/04B](#)) }
- E02B 7/02 . Fixed barrages
- E02B 7/04 . . Dams across vallies
- E02B 7/06 . . . Earth-fill dams; Rock-fill dams
- E02B 7/08 . . . Wall dams
- E02B 7/10 Gravity dams, i.e. those in which the weight of the structure prevents overturning
- E02B 7/12 Arch dams
- E02B 7/14 Buttress dams
- E02B 7/16 . Fixed weirs; Superstructures or flash-boards therefor
- E02B 7/18 . . Siphon weirs { (syphons in hydraulic engineering in general [E02D 29/08](#)) }
- E02B 7/20 . Movable barrages; Lock { or dry-dock } gates
- E02B 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](#) to [E02B 7/50](#)) }
- E02B 7/22 . . Stop log dams; Emergency gates
- E02B 7/24 . . Needle weirs
- E02B 7/26 . . Vertical-lift gates

- E02B 7/28 . . . with sliding gates
- E02B 7/30 . . . with guide wheels or rollers for the gates
- E02B 7/32 . . . Cylindrical or tubular gates
- E02B 7/34 . . . Flash- boards for vertical-lift gates
- E02B 7/36 . . . Elevating mechanisms for vertical-lift gates
- E02B 7/38 . . Rolling gates { or gates moving horizontally in their own plane, e.g. by sliding }
- E02B 7/40 . . Swinging or turning gates
- E02B 7/42 . . . Gates of segmental or sector-like shape with horizontal axis
- E02B 7/44 . . . Hinged-leaf gates
- E02B 7/46 . . . Gates turning round a horizontal axis arranged midway of the flap
- E02B 7/48 . . . Roof or double shutter gates
- E02B 7/50 . . Floating gates
- E02B 7/52 . . Equipment preventing vibration of gates
- E02B 7/54 . . Sealings for gates

- E02B 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 }**

- E02B 8/02 . Sediment base gates; Sand sluices; Structures for retaining arresting waterborne material
- E02B 8/023 . . { Arresting devices for waterborne materials ([E02B 1/003](#) takes precedence; in artificial watercourses [E02B 5/085](#); arresting oil or the like **E02B 15/04B**; sieving devices for waste water purification [C02F](#); in sewers [E03F 5/14](#)) }
- E02B 8/026 . . . { Cleaning devices (for fish barrages [E02B 1/006](#)) }

- E02B 8/04 . Valves, slides, or the like; Submerged sluice gates
- E02B 8/045 . . { automatically movable }

- E02B 8/06 . Spillways; Devices for dissipation of energy, e.g. for reducing eddies { also for lock or dry-dock gates }

- E02B 8/08 . Fish passes { or other means providing for migration of fish }; Passages for rafts or boats
- E02B 8/085 . . { Devices allowing fish migration, e.g. fish traps (arresting or diverting fish exclusively [E02B 1/006](#)) }

- E02B 9/00** **Water-power plants; Layout, construction or equipment, methods of, or apparatus for, making same**

- E02B 9/02 . Water-ways
- E02B 9/022 . . { Closures }
- E02B 9/025 . . . { automatically movable }
- E02B 9/027 . . . { Sliding closures ([E02B 9/025](#) takes precedence) }
- E02B 9/04 . . Free-flow canals or flumes; Intakes (gratings or screens therefor [E02B 5/08](#))
- E02B 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](#))

E02B 9/08 . Tide or wave power plants ([water-pressure machines](#), tide or wave motors [F03B](#))

E02B 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](#))}

E02B 11/005 . { [Drainage conduits](#) }

E02B 11/02 . Drainage device- laying apparatus, e.g. drainage ploughs

NOTE

Group [E02B 11/02](#) is incomplete, see also [E02F 3/00](#) and [E02F 5/00](#), dredgers and soil-shifting machines

E02B 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](#) })

E02B 13/02 . Closures for irrigation conduits

E02B 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](#))

E02B 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](#) })

E02B 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](#) })

E02B 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) }

E02B 15/042 . . { [Devices for removing the oil by combustion with or without means for picking up the oil](#) }

E02B 15/043 . . { [Devices or methods for removing oil by means of freezing](#) }

E02B 15/045 . . { [Separating means for recovering oil floating on a surface of open water](#); [E02B 15/048](#) takes precedence ([separation in general](#) [B01D](#)) }

E02B 15/046 . . { [Collection of oil using vessels, i.e. boats, barges](#) }

E02B 15/047 . . . { [provided with an oil collecting boom arranged on at least one side of the hull](#) }

E02B 15/048 . . { [Oil collectors moved over the water skimming the water surface](#) }

E02B 15/06 . . Barriers therefor ([E02B 15/08](#) takes precedence) { [construed for applying](#)

- processing agents or for collecting pollutants, e.g. absorbent }
- E02B 15/08 .. Devices for reducing the polluted area { with or } without { additional devices for } removing the material
- E02B 15/0807 ... { with stabilising elements }
- E02B 15/0814 ... { with underwater curtains }
- E02B 15/0821 ... { adapted for protection against fire or extreme heat }
- E02B 15/0828 ... { fixed to the side of a boat for containing small leaks in the hull }
- E02B 15/0835 ... { fixed to permanent structure, e.g. harbour wall or river bank }
- E02B 15/0842 ... { adapted to be towed for operation }
- E02B 15/085 ... { Details of connectors }
- E02B 15/0857 ... { Buoyancy material }
- E02B 15/0864 { Air ([E02B 15/0878](#) takes precedence) }
- E02B 15/0871 { self-inflating barriers }
- E02B 15/0878 { Air and water }
- E02B 15/0885 { Foam }
- E02B 15/0892 { using expanded polystyrene foam }
- E02B 15/10 .. Devices for removing the material from the surface {([E02B 15/041](#), [E02B 15/042](#), [E02B 15/06](#) take precedence)}
- E02B 15/101 ... { Means floating loosely on the water absorbing the oil (absorbing materials [C02F](#)) }
- E02B 15/102 ... { Discs }
- E02B 15/103 ... { Rotary drums }
- E02B 15/104 ... { Conveyors; Paddle wheels; Endless belts ([E02B 15/101](#) takes precedence) }
- E02B 15/105 ... { Archimedian screws }
- E02B 15/106 ... { Overflow skimmers with suction heads; suction heads }
- E02B 15/107 ... { Whirling means forming a vortex in the water; cyclones }
- E02B 15/108 ... { Ejection means }

- E02B 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](#) })

- E02B 17/0004 . { Nodal points }

- E02B 17/0008 . { Methods for grouting offshore structures; apparatus therefor (cementing boreholes [E21B 33/13](#)) }

- E02B 17/0013 . { Tube closures for releasable sealing hollow tubes }

- E02B 17/0017 . { Means for protecting offshore constructions }
- E02B 17/0021 .. { against ice-loads }
- E02B 17/0026 .. { against corrosion }
- E02B 17/003 .. { Fenders }

- E02B 17/0034 . { Maintenance, repair or inspection of offshore constructions }

- E02B 17/02 . placed by lowering the supporting construction to the bottom, e.g. with subsequent fixing thereto
- E02B 17/021 . . { with relative movement between supporting construction and platform }
- E02B 17/022 . . . { adapted to travel on the bottom (walking gears moving dredgers forward step-by-step [E02F 9/04](#)) }
- E02B 17/024 . . . { shock absorbing means for the supporting construction }
- E02B 17/025 . . { Reinforced concrete structures ([E02B 17/021](#) takes precedence) }
- E02B 17/027 . . { steel structures ([E02B 17/021](#) takes precedence) }
- E02B 17/028 . . { Ice-structures }

- E02B 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](#))
- E02B 17/06 . . for immobilising, e.g. using wedges or clamping rings { (as elements of the raising or lowering means [E02B 17/08](#)) }
- E02B 17/08 . . for raising or lowering
- E02B 17/0809 . . . { the equipment being hydraulically actuated (outriggers for cranes [B66C 23/80](#)) }
- E02B 17/0818 . . . { with racks actuated by pinions (lifting jacks [B66F 3/02](#) to [B66F 3/06](#)) }
- E02B 17/0827 . . . { with screws and nuts mechanism (climbing jacks with following nut [E02B 17/0881](#); lifting jacks [B66C 3/08](#)) }
- E02B 17/0836 . . . { with climbing jacks (climbing cranes [B66C 23/32](#); hydraulic lifting jacks [B66F 3/24](#) and subgroups) }
- E02B 17/0845 { with inflatable clamping rings }
- E02B 17/0854 { with clamping wedges, eccentric clamping devices and so on (catch devices for elevators [B66B 5/20](#), [B66B 5/24](#), [B66B 5/26](#)) }
- E02B 17/0863 { with rack and pawl mechanism }
- E02B 17/0872 { with locking pins engaging holes or cam surfaces }
- E02B 17/0881 { with following nuts }
- E02B 17/089 { with subtentation blocks, feet and so on }

- E02B 2015/00** **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](#))

- E02B 2015/005 . Tent-like structures for dealing with pollutant emissions below the water surface

- E02B 2017/00** **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](#) })

- E02B 2017/0039 . Methods for placing the offshore structure
- E02B 2017/0043 . . Placing the offshore structure on a pre-installed foundation structure
- E02B 2017/0047 . . using a barge

- E02B 2017/0052 . Removal or dismantling of offshore structures from their offshore location

- E02B 2017/0056 . Platforms with supporting legs
- E02B 2017/006 . . with lattice style supporting legs
- E02B 2017/0065 . . Monopile structures
- E02B 2017/0069 . . Gravity structures
- E02B 2017/0073 . . Details of sea bottom engaging footing
- E02B 2017/0078 . . . Suction piles, suction cans
- E02B 2017/0082 . . . Spudcans, skirts or extended feet
- E02B 2017/0086 . . . Large footings connecting several legs or serving as a reservoir for the storage of oil or gas

- E02B 2017/0091 . Offshore structures for wind turbines

- E02B 2017/0095 . Connections of subsea risers, piping or wiring with the offshore structure

- E02B 2201/00 Devices, constructional details or methods of hydraulic engineering not otherwise provided for**

- E02B 2201/02 . Devices and methods for creating a buffer zone in the water to separate e.g. salt and sweet water

- E02B 2201/04 . using old tires for hydraulic engineering

- E02B 2201/50 . Devices for sequentially discharging constant liquid quantities, e.g. into different irrigation channels