COOPERATIVE PATENT CLASSIFICATION

B PERFORMING OPERATIONS; TRANSPORTING

NOTES omitted

TRANSPORTING

B63 SHIPS OR OTHER WATERBORNE VESSELS; RELATED EQUIPMENT

B63H MARINE PROPULSION OR STEERING (arrangement of propulsion or steering means on amphibious vehicles B60F 3/0007; propulsion of air-cushion vehicles B60V 1/14; peculiar to submarines, other than nuclear propulsion, B63G; peculiar to torpedoes F42B 19/00)

NOTE

In this subclass, the indexing codes B63B 2201/00 - B63B 2241/00 are to be used for relevant technical information concerning particular or unusual use, materials, design, methods or means

WARNINGS

1. 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.
2. Groups B63H 1/00 - B63H 25/52 are incomplete pending reclassification of documents from groups B63B 2701/00 - B63B 2770/00.

All groups listed in this Warning should be considered in order to perform a complete search.

1/00 Propulsive elements directly acting on water (jet propulsion B63H 11/00; attachment of propellers on shafts B63H 23/34)
2001/005 . . . . using Magnus effect
2001/02 . . . . of rotary type (endless-track type B63H 1/34)
2001/04 . . . . with rotation axis substantially at right angles to propulsive direction
2001/045 . . . . {with partially immersed nutating or undulated disks, e.g. wobble plates}
2001/06 . . . . with adjustable vanes or blades
2001/08 . . . . with cyclical adjustment
2001/10 . . . . . of Voith Schneider type, i.e. with blades extending axially from a disc-shaped rotary body
2001/105 . . . . . {with non-mechanical control of individual blades, e.g. electric or hydraulic control}
2001/12 . . . . . with rotation axis substantially in propulsive direction
2001/122 . . . . . {Single or multiple threaded helicoidal screws, or the like, comprising foils extending over a substantial angle; Archimedean screws}
2001/125 . . . . . {with helicoidal foils projecting from outside surfaces of floating rotatable bodies, e.g. rotatable, cylindrical bodies}
2001/127 . . . . . {with helicoidal foils projecting from inside surfaces of rotating shrouds; Archimedean screws}
2001/14 . . . . . Propellers (pitch changing B63H 3/00)
2001/145 . . . . . {comprising blades of two or more different types, e.g. different lengths}
2001/15 . . . . . having vibration damping means (anti-vibration mounting of propulsion plant B63H 21/30; means for damping vibration in general F16E)
2001/16 . . . . . having a shrouding ring attached to blades

1/18 with means for diminishing cavitation, e.g. supercavitation

2001/185 . . . . . {Surfacing propellers, i.e. propellers specially adapted for operation at the water surface, with blades incompletely submerged, or piercing the water surface from above in the course of each revolution}
2001/20 . . . . . Hubs; Blade connections
2001/22 . . . . . the blades being foldable
2001/24 . . . . . . automatically foldable or unfoldable
2001/26 . . . . . . Blades
2001/265 . . . . . . each blade being constituted by a surface enclosing an empty space, e.g. forming a closed loop
2001/28 . . . . . Other means for improving propeller efficiency (water-guiding elements formed by shape of hull B63H 5/00)
2001/283 . . . . . {Propeller hub caps with fins having a pitch different from pitch of propeller blades, or a helix hand opposed to the propellers' helix hand}
2001/286 . . . . . {Injection of gas into fluid flow to propellers, or around propeller blades}
2001/30 . . . . . of non-rotary type
2001/32 . . . . . Flaps, pistons, or the like, reciprocating in propulsive direction
2001/34 . . . . . of endless-track type
2001/342 . . . . . {with tracks substantially parallel to propulsive direction}
2001/344 . . . . . {having paddles mounted in fixed relation to tracks, or to track members}
Propeller-blade pitch changing (aircraft propellers B64C 11/30; rotors of turbines F01D 7/00; axial wind motors F03D 7/022; axial-flow pumps F04D 29/00)

3/00 . . . [with individually adjustable blades]
3/02/004 . . . [comparing means for locking blades in position]
3/06/006 . . . [Detecting or transmitting propeller-blade pitch angle]
3/08 . . . [characterised by self-adjusting pitch, e.g. by means of springs, centrifugal forces, hydrodynamic forces]
3/02 . . . actuated by control element coaxial with propeller shaft, e.g. the control element being rotary (B63H 3/002 takes precedence, fluid actuated B63H 3/081)
3/04 . . . the control element being reciprocatable
3/06 . . . characterised by use of non-mechanical actuating means, e.g. electrical (B63H 3/002 takes precedence)
3/08 . . . fluid
3/081 . . . [actuated by control element coaxial with the propeller shaft]
3/082 . . . . . . [the control element being axially reciprocatable]
3/084 . . . . . . . [with annular cylinder and piston]
3/085 . . . . . . . [the control element having means for preventing rotation together with the propeller]
3/087 . . . . [using gaseous fluids, e.g. steam or air]
3/088 . . . . [characterised by supply of fluid actuating medium to control element, e.g. of hydraulic fluid to actuator co-rotating with the propeller]
3/10 . . . characterised by having pitch control conjoint with propulsion plant control
3/12 . . . the pitch being adjustable only when propeller is stationary (B63H 3/002 takes precedence)

Arrangements on vessels of propulsion elements directly acting on water

5/00 . . . [having paddles movably mounted on the track or on track members, e.g. articulated, or with means for cyclically controlling the paddles’ angular position or orientation]
5/03 . . . movably mounted with respect to the hull, e.g. having means to reposition paddle wheel assembly, or to retract paddle or to change paddle attitude
5/04 . . . with stationary water-guiding elements
5/07 . . . of propellers (forming part of outboard units (or Z-drives) B63H 20/00)
2005/075 . . . [using non-azimuthing podded propulsor units, i.e. podded units without means for rotation about a vertical axis, e.g. rigidly connected to the hull]

Arrangements thereof on vessels

2005/103 . . . of more than one propeller
2005/106 . . . of coaxial type, e.g. of counter-rotative type

Propulsive devices directly acted on by wind; Arrangements thereof (air driven propellers driving underwater propulsion elements B63H 13/00)

9/02 . . . using Magnus effect
9/04 . . . using sails or like wind-catching surfaces (sailing sledges or ice boats B62B 15/00; masts for sailing boats B63B 15/0083; sail arrangements for wind-driven boards B63B 35/7973)
9/06 . . . Construction or types of sails; Arrangements thereof on vessels
9/0607 . . . [Rigid or aerofoil type sails]
9/0614 . . . [Inflatable aerofoil sails]
2009/0621 . . . [Rigid sails comprising one or more pivotally supported panels]
Effecting propulsion by jets, i.e. reaction principle (steering by auxiliary jet action, rudders carrying jets) B63H 25/46; power plant per se, see the relevant classes

Effecting propulsion by wind motors driving water-engaging propulsive elements

Effecting propulsion by use of vessel-mounted driving mechanisms co-operating with anchored chains or the like
B63H

16/00 **Effecting propulsion by muscle power** (swimming frameworks, i.e. apparatus fixed to or held by the swimmer or diver) with swimmer-operated driving mechanisms \*A63B 35/00\*; land-based training equipment for rowing or sculling \*A63B 69/06\*

2016/005 . . . [used on vessels dynamically supported, or lifted out of the water by hydrofoils]
2016/02 . . . Movable thwarts; Footrests
2016/04 . . . Oars; Sculls; Paddles; Poles
2016/043 . . . [Stop sleeves or collars for positioning oars in rowlocks, e.g. adjustable]
2016/046 . . . [Oars for single-oar sculling, i.e. for propelling boats by swinging single stern-mounted oars from side to side; Use or arrangements thereof on boats]

16/06 . . . Rowlocks; Mountings therefor
2016/063 . . . [Rowlocks mounted on movable support structures]
16/067 . . . Rowlocks mounted on a structure extending beyond the gunwale of the vessel
16/073 . . . having oar shaft restraining means
16/08 . . . Other apparatus for converting muscle power into propulsive effort (general features of propulsion elements, see the relevant groups)

2016/085 . . . [comprising means for transmitting muscular power applied in oscillatory or rotary manner to a rotary input shaft of a reversing transmission, e.g. alternatively allowing for ahead or astern propulsion]
16/10 . . . for bow-facing rowing
16/102 . . . [by using an inverting mechanism between the handgrip and the blade, e.g. a toothed transmission]
16/105 . . . [the mechanism having articulated rods]
16/107 . . . [by placing the fulcrum outside the segment defined by handgrip and blade]
16/12 . . . [using hand levers, cranks, pedals, or the like, e.g. water cycles, boats propelled by boat-mounted pedal cycles]

**WARNING**
This group is no longer used for classification of new documents as from 01.01.2012. The backlog of this group is being continuously reclassified to groups \*B63H 16/16 - B63H 16/20\*

16/14 . . . [for propelled drive]

**WARNING**
This group is no longer used for classification of new documents as from 01.01.2012. The backlog of this group is being continuously reclassified to groups \*B63H 16/16 - B63H 16/20\*

16/16 . . . using reciprocating pull cable, i.e. a strand-like member movable alternately backward and forward
2016/165 . . . [comprising means for transforming oscillating movement into rotary movement, e.g. for driving propeller shafts]
16/18 . . . using sliding (or pivoting) handle or pedal, i.e. the motive force being transmitted to a propelling means by means of a lever operated by the hand or foot of the occupant

16/185 . . . [comprising means for transforming oscillating movement into rotary movement, e.g. for driving propeller shafts]
16/20 . . . using rotary cranking arm
2016/202 . . . [specially adapted or arranged for being actuated by the feet of the user, e.g. using bicycle-like pedals]
2016/205 . . . [making use of standard bicycles]
2016/207 . . . . . . [without wheels]

19/00 **Effecting propulsion of vessels, not otherwise provided for**

19/02 . . . by energy derived from movement of ambient water, e.g. from rolling or pitching of vessels
19/04 . . . propelled by water current
19/06 . . . by discharging gas into ambient water (with jet action \*B63H 11/12\*; for reducing surface friction \*B63B 17/38\*)
19/08 . . . by direct engagement with water-bed or ground

20/00 **Outboard propulsion units, i.e. propulsion units having a substantially vertical power leg mounted outboard of a hull and terminating in a propulsion element, e.g. "outboard motors", Z-drives (with level bridging shaft arranged substantially outboard) (power plants per se, see the relevant classes); Arrangements thereof on vessels ([transom panels for outboard motors on inflatable boats \*B63B 7/087\*; tug-type floating propeller units \*B63B 35/665\*; rudders carrying propellers \*B63H 25/02\*; rudders carrying jets \*B63H 25/46\*; engines of outboard propulsion units \*F02D 61/045\*)
20/001 . . . [Arrangements, apparatus and methods for handling fluids used in outboard drives (for handling exhaust gas \*B63H 20/74\*; for handling cooling-water \*B63H 20/28\*; cooling outboard marine engines \*F01P 3/02\*; air intakes for outboard marine engines \*F02M 35/167\*)]
20/002 . . . [for handling lubrication liquids (in engines, e.g. outboard marine engines, \*F01M\*)]
20/003 . . . [Arrangements of two, or more outboard propulsion units]
20/005 . . . [Arrangements of two or more propellers, or the like on single outboard propulsion units]
20/006 . . . [of coaxial type, e.g. of counter-rotative type]
20/007 . . . [Trolling propulsion units (trolling plates for slowing down \*B63H 25/50\*; dynamo-electric machines of trolling units \*H02K\*)]
20/008 . . . [Tools, specially adapted for maintenance, mounting, repair, or the like of outboard propulsion units, e.g. of outboard motors or Z-drives]
20/02 . . . Mounting of propulsion units \*B63H 20/08\* takes precedence)
20/025 . . . [Sealings specially adapted for mountings of outboard drive units; Arrangements thereof, e.g. for transom penetrations]
20/04 . . . in a well
20/06 . . . on an intermediate support
20/08 . . . Means enabling movement of the position of the propulsion element, e.g. for trim, tilt, or steering (transmissions allowing movement of the propulsion element \*B63H 20/14\*; Control of trim or tilt (initiating means for steering \*B63H 25/02\*)]
20/10 . . . Means enabling trim or tilt, or lifting of the propulsion element when an obstruction is hit; Control of trim or tilt
NOTE
This group comprises arrangements of propulsion power plant or units on vessels and to some extent it includes adaptations of such plant or units to facilitate such arrangements

20/106 . . . [Means enabling lifting of the propulsion element in a substantially vertical, linearly sliding movement]
21/24 . . . [the vessels being small craft, e.g. racing boats]
21/26 . . . [of outboard type; Outboard propulsion power units movably installed for steering, reversing, tilting, or the like (transom panels for outboard motors for inflatable boats B63B 7/087; floating propeller units B63B 35/665)]

**WARNING**

Group B63H 21/26 and subgroups are no longer used for classification. Documents are in the process of being reorganised to B63H 5/125, and subgroups, to B63H 20/00, and subgroups, and to B63H 25/42.

21/265 . . . [Steering or control devices for outboards (steering by rudders B63H 25/06; control handles for boats B63H 21/213)]
21/28 . . . [Arrangements of transmission between propulsion power unit and propulsive element]
21/30 . . . Mounting of propulsion plant or unit, e.g. for anti-vibration purposes (hull reinforcements therefor B63B 3/70; of outboard propulsion units B63H 20/02; ) vibration in systems F16F; engine beds F16M)
21/302 . . . [with active vibration damping]
21/305 . . . [with passive vibration damping]
21/307 . . . [Arrangements, or mountings of propulsion power plant elements in modular propulsion power units, e.g. using containers]
21/32 . . . Arrangements of propulsion-plant-exhaust uptakes; Funnels peculiar to vessels; [Small watercraft exhaust arrangements, e.g. under-water], (engine exhausts in general F01N; flue devices for furnaces in general F23J; exhaust gas outlets forming part of outboard propulsion units or Z-drives B63H 20/24]

**WARNING**

Group B63H 21/32 is no longer used for classification of documents dealing with gas exhaust outlets forming part of outboard propulsion units or Z-drives. Respective documents are in the process of being reorganised to groups B63H 20/24; and B63H 20/26.

21/34 . . . having exhaust-gas deflecting means
21/36 . . . Covers or casing arranged to protect plant or unit from marine environment (Housings of outboard propulsion units B63H 20/32; hull construction B63H 3/00)
21/38 . . . Apparatus or methods specially adapted for use on marine vessels, for handling power plant or unit liquids, e.g. lubricants, coolants, fuels or the like, ([in outboard drives B63H 20/001; ] lubricating or cooling machines or engines in general F01 - F04)
21/383 . . . [for handling cooling-water (in outboard drives B63H 20/28; in machines or engines in general F01P 3/00)]
21/386 . . . [for handling lubrication liquids (in machines or engines in general F01M)]

23/00 Transmitting power from propulsion power plant to propulsive elements (changing pitch or propellers B63H 3/00; adaptation of transmission to allow adjustment in location or direction of propellers B63H 5/125; transmission between wind motors and propulsive elements B63H 13/00; in outboard propulsion units B63H 20/14; adaptation of transmission to allow adjustment of location of propellers B63H 20/08; adaptations of transmissions to allow steering or dynamic anchoring by propellers carried on rudders B63H 25/42; ) for vehicles in general B60K; driving auxiliary machinery B63J; transmission elements per se F16)
2023/005 . . . [using a drive acting on the periphery of a rotating propulsive element, e.g. on a dented circumferential ring on a propeller, or a propeller acting as rotor of an electric motor]
23/02 . . . with mechanical gearing
2023/0208 . . . [by means of endless flexible members]
2023/0216 . . . [by means of belts, or the like]
2023/0225 . . . [of grooved belts, i.e. with one or more grooves in longitudinal direction of the belt]
2023/0233 . . . [of belts having a toothed contact surface, or regularly spaced bosses, or hollows for slip-less or nearly slip-less meshing with complementary profiled contact surface of a pulley]
2023/0241 . . . [of V-belts, i.e. belts of tapered cross section]
2023/025 . . . [by means of chains]
2023/0258 . . . [comprising gearings with variable gear ratio, other than reversing drives or trolling drives]
2023/0266 . . . [comprising gearings with automatically variable gear ratio, other than continuously variable transmissions or trolling drives]
2023/0275 . . . [comprising means for conveying rotary motion with continuously variable gear ratio, e.g. continuously variable transmissions using endless flexible members]
2023/0283 . . . [using gears having orbital motion]
2023/0291 . . . [Trolling gears, i.e. mechanical power transmissions comprising controlled slip clutches, e.g. for low speed propulsion]
23/04 . . . the main transmitting element, e.g. shaft, being substantially vertical
23/06 . . . for transmitting drive from a single propulsion power unit
2023/062 . . . [comprising means for simultaneously driving two or more main transmitting elements, e.g. drive shafts]
2023/065 . . . [having means for differentially varying the speed of the main transmitting elements, e.g. of the drive shafts]
2023/067 . . . [the elements being formed by two or more coaxial shafts, e.g. counter-rotating shafts]
23/08 . . . with provision for reversing drive
23/10 . . . for transmitting drive from more than one propulsion power unit (for synchronisation of propulsive elements B63H 23/28)
23/12 . . . allowing combined use of the propulsion power units
23/14 . . . [with unidirectional drive or where reversal is immaterial]
23/16 . . . [characterised by provision of reverse drive]
B63H

23/18 . . . for alternative use of the propulsion power units
23/20 . . . with separate forward and astern propulsion power units, e.g. turbines
23/22 . . . with non-mechanical gearing
23/24 . . . electric 
2023/245 . . . (with two or more electric motors directly acting on a single drive shaft, e.g. plurality of electric rotors mounted on one common shaft, or plurality of electric motors arranged coaxially one behind the other with rotor shafts coupled together)
23/26 . . . fluid
23/28 . . . with synchronisation of propulsive elements
23/30 . . . characterised by use of clutches
2023/305 . . . (using fluid or semifluid as power transmitting means)
23/32 . . . Other parts
23/321 . . . (Bearings or seals specially adapted for propeller shafts)
2023/322 . . . (Intermediate propeller shaft bearings, e.g. with provisions for shaft alignment)
2023/323 . . . (Bearings for coaxial propeller shafts, e.g. for driving propellers of the counter-rotative type)
2023/325 . . . (Thrust bearings, i.e. axial bearings for propeller shafts)
23/326 . . . (Water lubricated bearings)
2023/327 . . . (Sealings specially adapted for propeller shafts or stern tubes)
2023/328 . . . (Marine transmissions characterised by the use of brakes, other than propeller shaft brakes; Brakes therefor)
23/34 . . . Propeller shafts; Paddle-wheel shafts; Attachment of propellers on shafts (shafts in general F16C: attachment of a member on a shaft in general F16D 1/06)
2023/342 . . . (comprising couplings, e.g. resilient couplings; Couplings therefor)
2023/344 . . . (comprising flexible shafts members)
2023/346 . . . (comprising hollow shaft members)
2023/348 . . . (with turning or inching gear, i.e. with means for slowly rotating, or for angularly positioning of shafts or propulsive elements mounted thereon)
23/35 . . . Shaft braking or locking, i.e. means to slow or stop the rotation of the propeller shaft or to prevent the shaft from initial rotation
23/36 . . . Shaft tubes (propeller-shaft tunnels B63B 11/06; shaft-tube seals F16J)
25/00 Steering; Slowing-down otherwise than by use of propulsive elements (using adjustably-mounted propeller ducts or rings for steering B63H 5/14; using movably-installed outboard propulsion units B63H 20/00); Dynamic anchoring, i.e. positioning vessels by means of main or auxiliary propulsive elements (anchoring, other than dynamic B63B 21/00; equipment to decrease pitch, roll or like unwanted vessel movements by auxiliary jets or propellers B63B 39/08; (systems for waterborne vessel position control G05, e.g. G05D 1/00))
2025/005 . . . (Steering specially adapted for towing trains, tug-barge systems, or the like; Equipment or accessories therefor)
25/02 . . . Initiating means for steering, (for slowing down, otherwise than by use of propulsive elements, or for dynamic anchoring)
2025/022 . . . (Steering wheels; Posts for steering wheels)
2025/024 . . . (Handle-bars; Posts for supporting handle-bars, e.g. adjustable posts)
2025/026 . . . (using multi-axis control levers, or the like, e.g. joysticks, wherein at least one degree of freedom is employed for steering, slowing down, or dynamic anchoring)
2025/028 . . . (using remote control means, e.g. wireless control; Equipment or accessories therefor)
25/04 . . . automatic, e.g. reacting to compass
2025/045 . . . (making use of satellite radio beacon positioning systems, e.g. the Global Positioning System [GPS])
25/06 . . . Steering by rudders (by rudders carrying propellers B63H 25/42)
2025/063 . . . (Arrangements of rudders forward of the propeller position, e.g. of backing rudders; Arrangements of rudders on the forebody of the hull; Steering gear therefor)
2025/066 . . . (Arrangements of two or more rudders; Steering gear therefor)
25/08 . . . Steering gear
25/10 . . . with mechanical transmission
25/12 . . . with fluid transmission
25/14 . . . power assisted; power driven, i.e. using steering engine
25/16 . . . with alternative muscle or power operated steering
25/18 . . . Transmitting of movement of initiating means to steering engine
25/20 . . . by mechanical means
25/22 . . . by fluid means
25/24 . . . by electrical means
25/26 . . . Steering engines
25/28 . . . of fluid type
25/30 . . . . . . hydraulic
25/32 . . . . . . steam
25/34 . . . . . . Transmitting of movement of engine to rudder, e.g. using quadrants, brakes
25/36 . . . Rudder-position indicators
25/38 . . . . . . Rudders (stern posts B63B 3/40; rudders mounted on housing of outboard motors B63H 20/34; rudders carrying propellers B63H 25/42; rudders carrying jets B63H 25/46)
25/381 . . . . . . (with flaps)
25/382 . . . . . . (movable otherwise than for steering purposes; Changing geometry)
25/383 . . . . . . (with deflecting means able to reverse the water stream direction)
2025/384 . . . . . . (with means for retracting or lifting)
2025/385 . . . . . . (by pivoting)
2025/386 . . . . . . (by sliding, e.g. telescopic)
2025/387 . . . . . . (comprising two or more rigidly interconnected mutually spaced blades pivotable about a common rudder shaft, e.g. parallel twin blades mounted on a pivotable supporting frame)
2025/388 . . . . . . (with varying angle of attack over the height of the rudder blade, e.g. twisted rudders)
25/40 . . . using Magnus effect
Steering or dynamic anchoring by propulsive elements (by jets B63H 25/46); Steering or dynamic anchoring by propellers used thereof only; Steering or dynamic anchoring by rudders carrying propellers

Propulsive elements, other than jets, substantially used for steering or dynamic anchoring only, with means for retracting, or otherwise moving to a rest position outside the water flow around the hull

Steering or slowing-down by extensible flaps or the like

Steering or dynamic anchoring by jets (or by rudders carrying jets (steering or dynamic anchoring by deflecting or directing main propulsion jets B63H 11/00))

Jets or thrusters substantially used for steering or dynamic anchoring only, with means for retracting, or otherwise moving to a rest position outside the water flow around the hull

Steering or slowing-down by deflection of propeller slipstream otherwise than by rudder

Slowing-down means not otherwise provided for

Parts for steering not otherwise provided for