

Title (en)
SHAPE OF THE BOW OF A SHIP, E.G. OF AN ICE-BREAKER

Publication
EP 0079002 B1 19860129 (DE)

Application
EP 82109979 A 19821028

Priority
• DE 3143857 A 19811105
• DE 3203468 A 19820203
• DE 3221924 A 19820611
• DE 3233816 A 19820911

Abstract (en)

[origin: ES275563U] Vessel, characterized in that the bow of the ship has a frontal surface inclined forwardly above, which extends over a substantial part of the width of the vessel and is limited at its outer lateral edges by two lateral edges curved partially in the longitudinal direction, the lateral edges projecting laterally with respect to the ship's hull located above and the front surface bulging or buckling downwards from port to starboard, increasing in size from front to rear. Ship according to claim 1, characterized in that with a pontoon-shaped bow part having a front surface extending over the entire width of the vessel and being flat at the bottom and strongly inclined forwardly above, and also having some cutting edges located in an approximately parallel position in the area of the lower edges of the sides, the V-shaped part of the pro-submerged part being connected to the pontoon-shaped bow part and transitioning to the pontoon-shaped bow part with transition surfaces laterally inclined upwards and forwards above and spliced together on a forward sloped stem, establishing that the cutting edges form the widest part of the hull of the vessel that comes in contact with the ice. Ship according to claim 1 or 2, characterized in that the cutting edges and the front surface inclined forwardly above are curved or are rectilinear in the longitudinal direction, because the front surface has lower limitations in the central area of its longitudinal extension. Of the frames that run from port to starboard in approximately horizontal direction near the construction waterline, practically below it, and which form, at least approximately, a plane, and/or because in the submerged bow, in the longitudinal cross-section plane, a skate with a notched profile on the ice is arranged. 4. Vessel according to claim 1, characterized in that the lower side of the frames is bulging or buckling to the port side to the starboard side as measured again decreasing backwards between the side edges from the point of the length of the ship in which the surface the frontal reaches, in the plane of the bay, the bottom of the ship to at least the main frame plane. 5. Vessel according to claims 1 to 4, characterized in that the lateral edges are configured so as to continue backwards as a shoulder-like thickening along a relatively large part of the ship's length. 6. Vessel according to claim 5, characterized in that the thickenings in the manner of flanges flow backwards into the lateral constraints of helical tunnels. 7. Vessel according to claims 1 and 4 to 6, characterized in that the lateral rims are rounded in cross section. 8. Ship according to claims 1 and 4 to 6, characterized in that the lateral edges are made with sharp edges. 9. Vessel according to claim 8, characterized in that the lateral edges are arranged in the area of the bow, at least to the extent of a section determined below the construction waterline in two lateral planes and limitation located parallel to the plane of crunching in such a way that the lateral edges determine the widest place of the submerged form of the vessel. 10. Vessel according to claims 1 and 4 to 9, characterized in that the frontal surface inclined forwardly above presents in the middle zone of its longitudinal extension, close to the construction waterline, particularly below it, lower limitations of the frames that run from port to starboard in an approximately horizontal direction, with which the frontal surface in this zone, at least approximately, a plane. 11. Vessel according to claims 1 and 4 to 10, characterized in that the lateral edges are led forward beyond the front surface above the construction waterline and transition to two rovings in the manner of catamarans, with respect to which the shape of the ship is retracted in the area of the groove plane and this form is configured so that it ascends upwards with greater slope than the two rodas. Ship according to one of claims 1 to 4 to 11, characterized in that the shape of the ship is determined by hollow frames or concaves downwards at least above the longitudinal extension of the lateral edges. 13. Ship according to one of claims 1 to 12, characterized in that the cutting edges make a forward transition from above to two rods similar to catamarans, with respect to which the shape of the ship in the area is retracted in the longitudinal plane of the bay. And this form ascends upwards with greater slope than the two rodas. 14. Vessel according to claims 1 to 13, characterized in that the cutting edges are guided forward, preferably in bar-like profiles, passing the front surface and entering the area of the two rovings similar to catamarans above the line. Of consistent ice-water. 15. Vessel according to claims 1 to 14, characterized in that the central skate is arranged in the rear submerged area of the front surface. 16. Vessel according to claims 1 to 15, characterized in that the central skate is arranged in the submerged bow part with V-shaped frames below. 17. Ship according to claims 1 to 16, characterized in that the central skate is extended back to the bottom of the vessel. Ship according to one of claims 15 to 17, characterized in that the central skate is made in a curved shape. 19. Ship according to one of claims 3 and 13 to 18, characterized in that the central skate consists of one or more teeth. 20. Vessel according to one of claims 3 and 13 to 19, characterized in that the cutting edges preferably located in bar-like profiles extend further back to the region of the submerged bow frames configured in the shape of a v or well configured in the form of a trapeze. 21. Vessel according to one of claims 3 and 13 to 20, characterized in that the cutting edges make a rearward transition to lateral bulges in the manner of flanges of the ship's hull. 22. Vessel according to one of claims 3 and 13 to 21, characterized in that the lower edge of the central skate is inclined more strongly with respect to the horizontal, only in the magnitude of a small angle, than the lateral cutting edges in the section. Corresponding to the length of the vessel. 23. Ship according to claim 22, characterized in that the difference between the inclination angles of the central skate and the cutting edges with respect to the horizontal decreases from front to rear. Ship according to one of claims 3 and 13 to 23, characterized by a waterline that can be generated by means of a larger load, for example by ballast water, above the construction waterline for cutting of layers of ice with great thickness. 25. Ship. (Machine-translation by Google Translate, not legally binding)

IPC 1-7
B63B 35/12; **B63B 1/06**

IPC 8 full level
B63B 35/08 (2006.01); **B63B 1/06** (2006.01); **B63B 3/00** (2006.01); **B63B 35/12** (2006.01)

CPC (source: EP KR US)
B63B 1/06 (2013.01 - EP US); **B63B 3/00** (2013.01 - KR); **B63B 35/08** (2013.01 - KR); **B63B 35/12** (2013.01 - EP US)

Cited by
CN112373635A; CN102871207A; DE4204890C2; EP0328720A1; EP0260395A3

Designated contracting state (EPC)
BE DE FR GB IT NL SE

DOCDB simple family (publication)
EP 0079002 A1 19830518; **EP 0079002 B1 19860129**; AR 229710 A1 19831031; AU 9012282 A 19830512; BR 8206409 A 19830906; CA 1187342 A 19850521; DD 204232 A5 19831123; DE 3268881 D1 19860313; DK 487582 A 19830506; ES 275563 U 19840801; ES 275563 Y 19850301; FI 75532 B 19880331; FI 75532 C 19890822; FI 823692 A0 19821028; FI 823692 L 19830506; GR 77123 B 19840907; KR 840002310 A 19840625; KR 860002189 B1 19861230; NO 162221 B 19890821; NO 162221 C 19891129; NO 823671 L 19830506;

PL 144286 B1 19880531; PL 238845 A1 19830523; PT 75798 A 19821201; PT 75798 B 19850128; SU 1308188 A3 19870430;
US 4506617 A 19850326

DOCDB simple family (application)

EP 82109979 A 19821028; AR 29109482 A 19821026; AU 9012282 A 19821103; BR 8206409 A 19821104; CA 414936 A 19821104;
DD 24461582 A 19821105; DE 3268881 T 19821028; DK 487582 A 19821103; ES 275563 U 19821105; FI 823692 A 19821028;
GR 820169650 A 19821026; KR 820004987 A 19821105; NO 823671 A 19821104; PL 23884582 A 19821103; PT 7579882 A 19821104;
SU 3510549 A 19821104; US 43805682 A 19821101