

PATENT SPECIFICATION

(11)

1 392 887

1 392 887

- (21) Application No. 35081/73 (22) Filed 23 July 1973
(31) Convention Application No. 2 744/72 (32) Filed 1 Aug. 1972 in
(33) Norway (NO)
(44) Complete Specification published 7 May 1975
(51) INT. CL.² B63B 1/12
(52) Index at acceptance
B7A 24 8B 8D3



(54) AN ARRANGEMENT RELATING TO SHIP HULLS

(71) I, JENS TRONIE LAUENBORG, a Norwegian subject, of, "Fjelltun", N-1640 Raade, Norway, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to hulls for ships and, although it is particularly concerned with hulls for small, fast vessels, for example motor torpedo boats or gun-boats, it is of application for other types of vessels, for example relatively fast ferries.

Fast vessels, particularly the smaller types, will in heavy seas be subjected to high stresses and uncomfortable motions. When moving against the sea, the vessels are not only subjected to very strong pitching motions, shipping water over the deck, but also heavy pounding of the wave tops against the bottom of the vessel. Beam seas often cause a lurching motion or rolling which in extreme cases can endanger stability. Stabilizers will detrimentally affect the manoeuvrability of the vessel.

In accordance with the present invention, there is provided a ship's hull having a bow, stern, bottom and lateral sides and including two depending side portions which are spaced in opposition to one another and have free lower edges, said side portions defining at said bottom a central longitudinal channel extending from the stern towards the bow, and a central portion disposed in said channel at the front thereof and including a downwardly projecting longitudinally extending portion which projects to a level beneath the free lower edges of said side portions and has a length less than the overall length of the hull, said downwardly projecting longitudinally extending portion having a substantially rounded transverse section whose area increases and then decreases from the forward end to the rear end thereof.

[Price 33p]

When moving in the sea, the downwardly projecting longitudinally extending portion will generally always move through the water without being lifted out of the water even during very strong pitching motions of the vessel. This has the effect that waves will not be able to pound against the ship's bottom and, at the same time, the buoyancy of the downwardly projecting longitudinally extending portion will counteract the bow digging into the sea. The motion of the ship may be adjusted to the optimum by the arrangement of means in the downwardly projecting longitudinally extending portion which divide it into ballast tanks and/or fuel tanks for trimming purposes. By arranging the downwardly projecting longitudinally extending portion in such a way that it comprises ballast tanks, not only is it possible to adjust the trim for advantageous motion in sea but also to obtain maximum speed. The downwardly projecting longitudinally extending portion will also act as a wave damper in sea pounding against the vessel from any direction, particularly when most of the vessel is lifted out of the water at high speed.

In a preferred embodiment the downwardly projecting longitudinally extending portion is in the form of a drop-shaped body to reduce water resistance.

Preferably the downwardly projecting longitudinally extending portion is secured to the central longitudinal channel by a connecting member which extends over a part only of the length of the downwardly projecting longitudinally extending portion so that the forward end thereof extends freely forwards from the connecting member. The connecting member is preferably relatively narrow in section, so that it interferes minimally with the streamlined shape of the downwardly projecting longitudinally extending portion.

In beam seas, the downwardly projecting

longitudinally extending portion and its connecting members, serve as a very effective stabilizer without reducing the manoeuvrability.

5 It is possible to make use of the present invention without greatly increasing the tactical diameter.

Hydrophones and other equipment can be arranged inside the downwardly projecting longitudinally extending portion if desired. These will thereby be in an advantageous position in that they will be located at a considerable depth.

10 For a better understanding of the invention and to show how the same may be carried into effect reference will now be made by way of example, to the accompanying drawing, in which:—

15 Figure 1 shows a schematic side view of a vessel hull in accordance with the present invention; and

Figure 2 shows a rear perspective view of the hull of Figure 1.

20 Referring to the drawings, there is shown a ship's hull comprising a stern section B including two depending side portions, and a bow section C including, at the bottom, a central longitudinal channel which is defined by the spaced side portions. Disposed in the channel is a central portion which includes a downwardly projecting longitudinally extending portion A having a substantially rounded transverse section whose area increases and then decreases from the forward end to the rear end thereof.

30 This downwardly projecting longitudinally extending portion A is connected to the central channel by means of a connecting member and the forward end of the portion A protrudes forwardly beyond said member. It can be seen that the portion A is shorter than the overall length of the hull and that it extends to a level beneath the free lower edges of the side portions. Also, the rearward end of the portion A is to the front of the rearward end of the side portions.

45 In the embodiment shown the middle and aft section of the hull construction is shaped like a catamaran hull and this, together with the downwardly projecting longitudinally extending portion A of the bow section C, forms a modified trimaran structure.

If desired, more than one downwardly projecting longitudinally extending portion 55 may be provided on the bottom end of the vessel, for instance side by side and/or one after the other.

WHAT I CLAIM IS:—

60 1. A ship's hull having a bow, stern, bottom and lateral sides and including two depending side portions which are spaced in opposition to one another and have free lower edges, said side portions defining at said bottom a central longitudinal channel extending from the stern towards the bow, and a central portion disposed in said channel at the front thereof and including a downwardly projecting longitudinally extending portion which projects to a level beneath the free lower edges of said side portions and has a length less than the overall length of the hull, said downwardly projecting longitudinally extending portion 75 having a substantially rounded transverse section whose area increases and then decreases from the forward end to the rear end thereof.

2. A ship's hull as claimed in claim 1 80 and including a connecting member between said channel and said downwardly projecting longitudinally extending portion, said downwardly projecting longitudinally extending portion having a forward end which protrudes forwardly beyond said member.

3. A ship's hull according to claim 1 or 2 wherein said downwardly projecting longitudinally extending portion includes a ballast tank and/or a fuel tank.

4. A ship's hull substantially as hereinbefore described with reference to and as illustrated in the accompanying drawing.

HASELTINE, LAKE & CO.,

Chartered Patent Agents,

Hazlitt House,
28, Southampton Buildings,
Chancery Lane, London WC2A 1AT
also

Temple Gate House, Temple Gate,
Bristol BS1 6PT
and

Park Square, Leeds LS1 2LH, Yorks.



longitudinally extending portion and its connecting members, serve as a very effective stabilizer without reducing the manoeuvrability.

- 5 It is possible to make use of the present invention without greatly increasing the tactical diameter.

Hydrophones and other equipment can be arranged inside the downwardly projecting longitudinally extending portion if desired. These will thereby be in an advantageous position in that they will be located at a considerable depth.

For a better understanding of the invention and to show how the same may be carried into effect reference will now be made by way of example, to the accompanying drawing, in which:—

Figure 1 shows a schematic side view of a vessel hull in accordance with the present invention, and

Figure 2 shows a rear perspective view of the hull of Figure 1.

Referring to the drawings, there is shown a ship's hull comprising a stern section B including two depending side portions, and a bow section C including, at the bottom, a central longitudinal channel which is defined by the spaced side portions. Disposed in the channel is a central portion which includes a downwardly projecting longitudinally extending portion A having a substantially rounded transverse section whose area increases and then decreases from the forward end to the rear end thereof.

This downwardly projecting longitudinally extending portion A is connected to the central channel by means of a connecting member and the forward end of the portion A protrudes forwardly beyond said member. It can be seen that the portion A is shorter than the overall length of the hull and that it extends to a level beneath the free lower edges of the side portions. Also, the rearward end of the portion A is to the front of the rearward end of the side portions.

In the embodiment shown the middle and aft section of the hull construction is shaped like a catamaran hull and this, together with the downwardly projecting longitudinally extending portion A of the bow section C, forms a modified trimaran structure.

If desired, more than one downwardly projecting longitudinally extending portion may be provided on the bottom end of the vessel, for instance side by side and/or one after the other.

WHAT I CLAIM IS:—

1. A ship's hull having a bow, stern, bottom and lateral sides and including two depending side portions which are spaced in opposition to one another and have free lower edges, said side portions defining at said bottom a central longitudinal channel extending from the stern towards the bow, and a central portion disposed in said channel at the front thereof and including a downwardly projecting longitudinally extending portion which projects to a level beneath the free lower edges of said side portions and has a length less than the overall length of the hull, said downwardly projecting longitudinally extending portion having a substantially rounded transverse section whose area increases and then decreases from the forward end to the rear end thereof.

2. A ship's hull as claimed in claim 1 and including a connecting member between said channel and said downwardly projecting longitudinally extending portion, said downwardly projecting longitudinally extending portion having a forward end which protrudes forwardly beyond said member.

3. A ship's hull according to claim 1 or 2 wherein said downwardly projecting longitudinally extending portion includes a ballast tank and/or a fuel tank.

4. A ship's hull substantially as hereinbefore described with reference to and as illustrated in the accompanying drawing.

HASELTINE, LAKE & CO.,

Chartered Patent Agents,

Hazlitt House,
28, Southampton Buildings,
Chancery Lane, London WC2A 1AT
also

Temple Gate House, Temple Gate,
Bristol BS1 6PT
and

Park Square, Leeds LS1 2LH, Yorks.