STEERING MECHANISM FOR VESSELS

Henry C. Briggs, Brooklyn, N. Y.

Original application October 10, 1936, Serial No. 185,112. Divided and this application June 11, 1937, Serial No. 147,780

4 Claims. (Cl. 114—147)

My invention relates broadly to navigation of ships, submarines and aircraft and more particularly to safety mechanism for improving the dirigibility of ships, submarines and aircraft.

One of the objects of my invention is to provide an improved construction of navigation control mechanism by which steering of large vessels, submarine boats, and aircraft may be facilitated.

Another object of my invention is to provide a method of constructing a vessel having means associated with compartments in the vessel for displacing the fluid medium at positions along the vessel for facilitating the navigation of the vessel.

A further object of my invention is to provide an arrangement of maneuvering apparatus for vessels by which added driving power and extra speed may be obtained by the use of auxiliary propulsion means normally housed in streamline arrangement in compartments along the vessel.

Still another object of my invention is to provide an arrangement of maneuvering apparatus for vessels in which propellers are disposed in compartments along the vessel in the bow, sides, in the stern, or in the bottom of the hull with streamline doors arranged to open or close the compartments for the admission or discharge of the fluid medium through which the vessel is propelled.

Other and further objects of my invention reside in the arrangement of auxiliary propulsion mechanism for ships as set forth more fully in the specification hereinafter following reference to the accompanying drawings in which:

Figure 1 is a fragmentary horizontal sectional view showing an arrangement of compartments below the waterline in the stern of a vessel and housing the propulsion means by means of streamlined doors taken on line 1—1 of Fig. 2; Fig. 2 is a longitudinal sectional view taken on line 2—2 of Fig. 1 through one of the compartments with the aft compartment door in open position so that the propulsion means in the compartment is directly exposed to the water through which the vessel is navigated; Fig. 3 illustrates the auxiliary propelling mechanism of my invention mounted in a compartment adjacent the bow of a vessel, the view being taken on line 3—3 of Fig. 4; Fig. 4 is a horizontal sectional view taken on line 4—4 of Fig. 3 and showing the streamlined doors on opposite sides of the compartment which houses the auxiliary propelling mechanism; Fig. 5 is a side elevation of a vessel in which both the bow and stern are equipped with the auxiliary propelling mechanism of my invention; Fig. 6 is a horizontal sectional view on line 6—6 of Fig. 5; Fig. 7 is a horizontal sectional view taken on line 7—7 of Fig. 8 of a vessel in which the auxiliary propulsion compartments are located at positions along the vessel for facilitating the navigation of the vessel; and Fig. 8 is an elevational view illustrating the auxiliary propulsion compartments located along the vessel illustrated in Fig. 7.

I provide means auxiliary to the main propulsion means of the vessel for providing additional driving power for the vessel for facilitating maneuvering of the vessel. I provide compartments below the waterline in the bow or stern of the vessel or along the vessel. Propulsion means are provided within the compartments. Streamline doors are provided to open and close portions of the compartments for allowing ingress and egress of the water through which the vessel is propelled. The streamline doors may be constructed from armor plate for affording maximum protection to the propulsion means. The propulsion means may be suitably oriented within the compartments in order to impart maximum effectiveness to the propulsion means. I may drive the propulsion means through electric motors or through suitable transmission mechanism within the vessel.

In Figs. 1 and 2, I have shown methods of arranging the auxiliary propellers in separate compartments in spaced positions in the vessel. Compartments 104 and 105 may be suitably located adjacent the stern of vessel 1. Port compartment 104 and starboard compartment 105 may each be provided with separate streamline door closures 104a, 104b, 105a and 105b which may be opened or closed by remote control, as hereinbefore explained in connection with the sliding doors on the rudder. The compartments 104 and 105 are watertight and may be selectively employed in the maneuvering of the vessel by the selective operation of the auxiliary propellers 106 and 107. Propellers 106 and 107 are operated by suitable drives 108 and 109, controlled from the control position aboard the vessel. I may locate these compartments in spaced positions at the bow, in the sides, in the stern or in the bottom of the hull of the vessel.

The compartments may be demountably connected to the prow of the vessel as represented in Figs. 3 and 4. I have indicated the lower portion of the hull at 1. The compartment 96 is watertight and has a substantially wedge-like inner bulkhead which cuts the water as it comes from the auxiliary propellers and throws it to the sides. The bulkhead however may extend laterally of the vessel or be provided with some other convenient shape. I provide a pair of streamline door closures 98 and 99 at the starboard side of the compartment 96 and a pair of door closures 100 and 101 at the port side of the compartment 96. These doors are operative through controls similar to the controls hereinafore described for the sliding doors in Figs. 1 and 2. Within the compartment 96, I mount one or more auxiliary
propllers as represented at 102 and drive the propellers in a manner similar to a method of drive heretofore explained, such as through motors 103, or by direct mechanical means. A single door may be provided at each side of the compartment, if desired. Various components of maneuvering forces may be obtained by coordinating the drive of the auxiliary propellers in different parts of the vessel.

The maneuvering propeller may be located in various positions with respect to the hull of the vessel. For example, illustrated in Figs. 5 and 6, the propeller mechanism as heretofore described may be housed in the hollow rudder 9 with respect to the hull of the vessel 1, and coordinated for operation with respect to the main propeller 3 and, in addition, other maneuvering propellers may be provided. In order to illustrate the several embodiments of my invention, I have illustrated in Figs. 5 and 6, an auxiliary propeller compartment in the skeg, as shown at 81 in Fig. 5, in which auxiliary propeller 88 is housed. To further facilitate the maneuverability of the vessel, I may provide a compartment 89 in the stern of the vessel in which a pair of auxiliary propellers 90 and 91 are symmetrically arranged. Moreover, a rudder may be provided forward of the vessel, as indicated at 92. For additional control of the vessel, a compartment may be provided in the prow of the vessel, as indicated at 93, in which auxiliary propeller 95 is located. It will be understood that separate control extends from the several auxiliary propellers to the control position aboard the vessel and the operation coordinated so that the maneuvering of a vessel of large size, is greatly simplified. A vessel of large size, of the order of 37,000 tons, driven by 200,000 horse power engines may be maneuvered quickly and within a smaller area to change the course of the vessel, thus increasing the safety of life and property.

I may arrange the auxiliary propulsion means in compartments in spaced positions along the vessel as illustrated in Figs. 7 and 8. In this arrangement, the hull of the vessel 1 is provided with port and starboard compartments 10 and 11 within which the separate propulsion means 12 and 14 are located. Separate driving means for the propulsion means 12 and 14 may be provided as indicated at 15 and 16 or the propulsion means may be driven from a position within the vessel. In the port compartment 10, I provide a forward streamline door 11 and a rear streamline door 20 which may be selectively opened or closed in order to facilitate maneuvering and propulsion of the vessel. Other methods of locating these separate compartments in spaced positions may be employed, for example, in the sides of the hull similar to the arrangements in the bow and stern illustrated in Figs. 1 and 2. Suitable orientation means may be provided for effectively directing the propulsion means in a suitable position for the proper maneuvering of the vessel.

This application is a division of my copending application Serial No. 105,112, filed October 10, 1936, for Safety mechanism for improving the dirigibility of ships, submarines and aircraft.

While I have described my invention in certain preferred embodiments, I desire that it be understood that modifications may be made and that no limitation upon my invention is intended other than those imposed by the scope of the appended claims.

What I claim as new and desire to secure by Letters Patent of the United States is as follows:

1. Mechanism for maneuvering vessels comprising in combination with the hull of a vessel a floatable body structure attachable to the hull of the vessel below the waterline, said floatable body conforming in streamline relation to the shape of the hull of the vessel, a propeller device mounted within said floatable body structure, means for driving said propeller device, and streamlined closure members mounted in the walls of said attachable floatable body structure for controlling the entry and discharge of water through said floatable body structure under the action of said propeller device.

2. Mechanism for maneuvering vessels comprising in combination with the tapered prow of a vessel, an attachable underwater compartment having a wall structure conforming to the tapered prow of the vessel and adapted to be detachably secured thereto beneath the waterline, propelling mechanism mounted within said underwater compartment, means for driving said propelling mechanism, and streamlined closure members for opposite walls of said compartment for controlling the admission and discharge of sea water into and out of said compartment when said propelling mechanism is being driven.

3. Mechanism for maneuvering vessels comprising in combination with the hull of a vessel, a floatable body structure attachable to the hull of the vessel below the waterline, said floatable body having wall portions conforming in streamline relation to the shape of the walls of the hull of the vessel and abutting each other in surface contact, a propeller device mounted within said floatable body structure, means for driving said propeller device, and streamlined closure members mounted in the walls of said attachable floatable body structure for controlling the entry and discharge of water through said floatable body structure under the action of said propeller device.

4. Mechanism for maneuvering vessels comprising in combination with the tapered prow of a vessel, an attachable underwater compartment having a bulkhead conforming to the tapered prow of the vessel and adapted to be detachably secured thereto beneath the waterline with the bulkhead of said compartment extending in surface contact with the tapered prow of the vessel, propelling mechanism mounted within said underwater compartment, means disposed within said compartment for driving said propelling mechanism, means for orienting said propeller device to a selected plane of operation within said floatable body structure, and streamlined closure members mounted in the walls of said attachable floatable body structure for controlling the entry and discharge of water through said floatable body structure under the action of said propeller device.

HENRY C. BRIGGS