

April 2, 1946.

F. N. NELSON

2,397,683

BOAT

Filed Dec. 23, 1942

3 Sheets-Sheet 1



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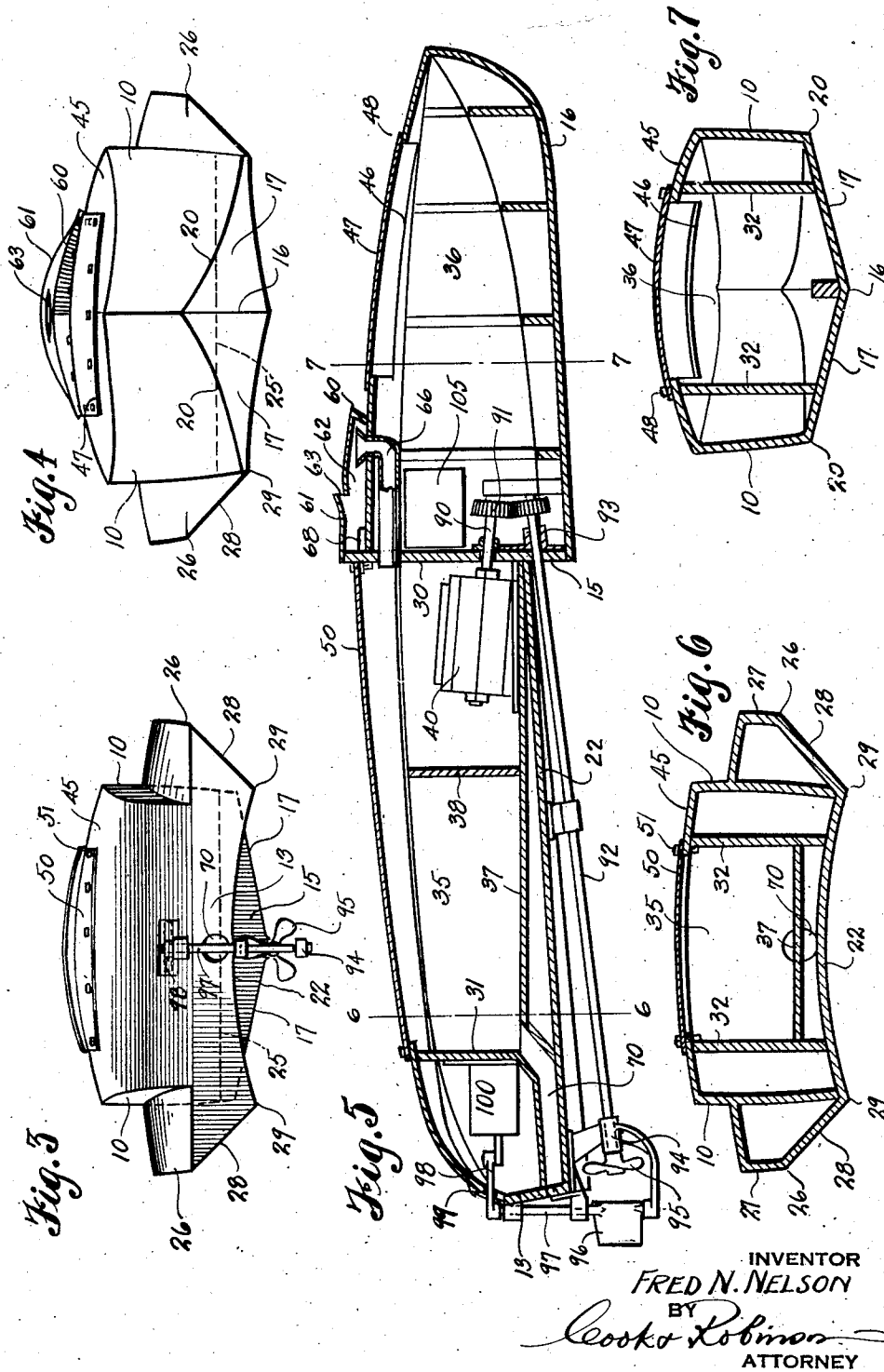
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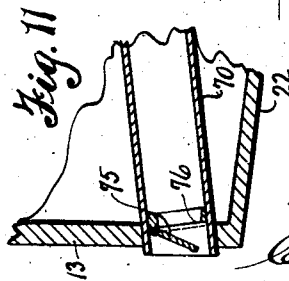
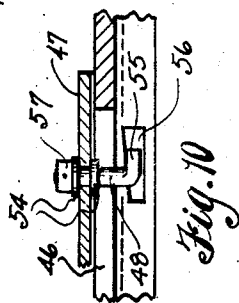
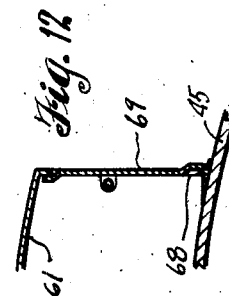
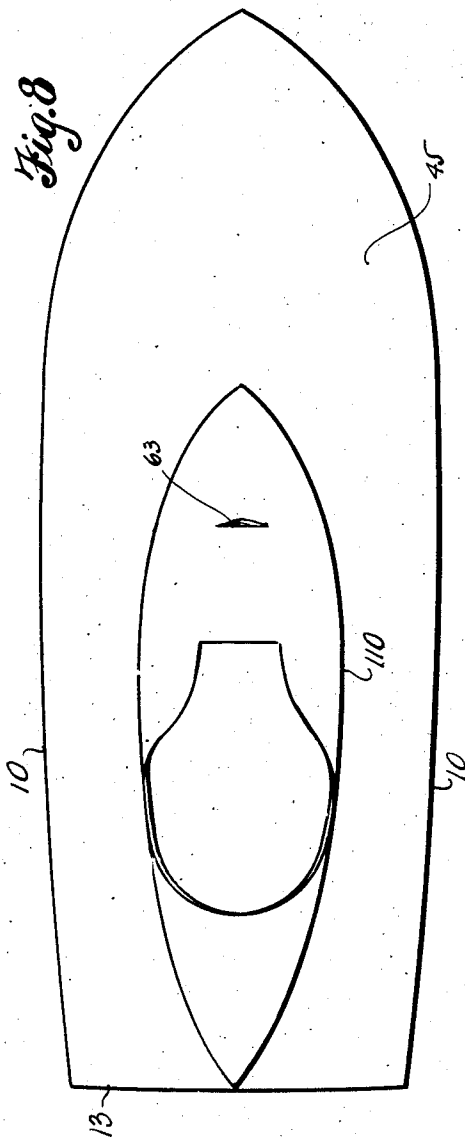
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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

2,397,683

BOAT

Fred N. Nelson, Seattle, Wash., assignor to Safety Boat Company, a corporation of Washington

Application December 23, 1942, Serial No. 469,872

3 Claims. (Cl. 114—66.5)

This invention relates to boats and has for its principal object to provide a boat having a hull design that permits of high speed operation of the boat in rough water or high seas without danger of being capsized.

Still other objects of this invention reside in specific details of construction and combination of parts, as will hereinafter be fully described.

In accomplishing these and other objects of the invention, I have provided the improved details of construction, the preferred forms of which are illustrated in the accompanying drawings, wherein—

Fig. 1 is a top, or plan view of a boat embodied by the present invention.

Fig. 2 is a side view of the same.

Fig. 3 is a stern view of the boat shown in Fig. 1, looking forward.

Fig. 4 is a bow view of the boat, looking aft.

Fig. 5 is a central, longitudinal sectional view of the boat.

Fig. 6 is a cross section on line 6—6 in Fig. 5.

Fig. 7 is a cross section on line 7—7 in Fig. 5.

Fig. 8 is a side view of a boat of a similar kind suited for peacetime uses.

Fig. 9 is a top view of the same.

Fig. 10 is a sectional detail of a hatch cover lock.

Fig. 11 is a sectional detail of the scupper valve structure.

Fig. 12 is a sectional detail of a clearing port valve.

Explanatory to the present invention, it will here be stated that it is my intention that this boat be of a kind that may be equipped with steering and propulsion means capable of various means of remote control; that is, to be equipped with known devices that adapt it to be operated as above explained, under control of apparatus, also known in the art, that may be located on the ship, aircraft or land station from which the present boats are to be controlled, so that the boat, after being loaded with explosives or other materials, may be directed to the object to be destroyed.

Furthermore, it is anticipated that these boats be of a character to be equipped with sound sensitive devices, capable of being tuned to receive certain sound vibrations whereby to effect the steering control devices in such manner as to cause the boat to seek the particular object to be destroyed. For example, such an object might be a submarine, or battleship. As alternative means for this purpose, devices based on the thermocouple principle may be used, these to be

set to pick up and follow heat rays as from the smoke stack of a vessel, or infra-red rays with the object of finding the vessel or other object through fog or smoke screen.

It is also the intent that the present boat be designed to be equipped with devices, also capable of remote control, for causing its cargo of explosive materials to be set off, or exploded at any predetermined instant, or to be reset against explosion in the event that it should be desired to cause the boat to return to its launching station. Especially, it is desired to so design the present type of boat that it can be caused to safely ride the waves at high speed, without capsizing and without being thrown off course.

Furthermore, it is the intent that boats of the character above outlined shall be of a kind adapted to be made from non-strategic materials which are readily available, such as plywood panels, and that they may be powered by engines of various kinds or types; for example, automobile engines, motor boat engines, or by engines of special design for this particular purpose.

Referring more in detail to the drawings—
The hull of the boat, as observed best in Figs. 1 and 2, is of substantial beam and relatively shallow. The opposite side walls 10—10 of the hull are substantially vertical throughout the length of the boat, being gradually curved inwardly toward each other to form the bow end, as noted at 11 in Fig. 1. From the curve of the bow section, the side walls 10—10 extend substantially parallel to each other to somewhat beyond amidships and then, beginning at the point 12 in Fig. 1, a slight inclination toward each other to the stern.

The stern panel 13 is substantially square cut, having but slight rearward curve, and is inclined rearwardly to slight extent from the bottom.

An important feature of the design of the present boat resides in the novel bottom construction. It is to be observed, in Figs. 2 to 5, that slightly forward of amidship, the bottom is stepped, thus providing a vertical, transverse and rearwardly facing shoulder 15. Forward of this shoulder, the bottom has a longitudinal keel ridge 16 from which the opposite side sections 17 and 17 of the bottom slope upwardly in a lateral direction, as shown best in Fig. 4, and merge into the bow at about the load water line. It is noted in Fig. 2 that the water line, or base line is designated at W and that the stepped portion of the bottom is somewhat below this line, while the bottom, where it meets the stern, is just above the water line. The bottom sections 17—17 meet the

side walls 10—10 of the bow section in a knuckle or chine 20 that curves gradually upward from the step 15 to the stern.

Rearwardly of the vertical shoulder 15 the bottom section 22 slopes downwardly to meet the stern panel at about the same level as the lower edge of the shoulder at the keel. This bottom section 22 joins the vertical step in a straight, horizontal line, as shown at 25 in Figs. 3 and 4 and then as it continues rearwardly, is transversely curved, as noted in Figs. 3 and 6, so that in effect the boat will have three concentrated areas or points of support when traveling at high speed in the water; one area being along the forward end portion of the keel, of the bow section, and the other two areas being along the rear end portions of the opposite side areas of the bottom of the stern section. This stern end support of the boat is augmented by pontoons or wings 26 and 26 that are built onto the opposite side walls along the stern end portion of the hull, as shown in Fig. 1. These pontoons have outside walls 27 which are substantially upright, and have bottoms 28 that slope inwardly and downwardly at an angle of about 45° to meet the edge of the bottom section 22 thus forming keel ridges indicated at 29—29 in Fig. 3.

It is shown in Fig. 6 that these pontoons or wings extend laterally of the hull to substantial distances, and are closed, thus to give additional buoyancy and greater insurance against capsizing the boat in high speed operation.

In the construction of the hull, transverse bulkheads, as at 30 and 31, are provided as needed for strength or to provide the desired separation of compartments. Also, longitudinal bulkheads 32—32, symmetrically located at opposite sides of the longitudinal center and extending the full length of the boat, are built in to give additional strength and serviceability to the structure. These longitudinal bulkheads serve as a part of a cockpit 35 in the after section of the hull and also as opposite sides of a hold 36 in the forward section. A false bottom 37 is provided in the cockpit and there is a transverse partition 38 in the cockpit setting off a compartment for the engine which is designated by numeral 40.

The top of the hull is covered with an upwardly crowned deck 45 and in this is a hatch opening 46 into hold 36 to which opening a cover plate 47 is applied and held in place by anchor bolts 48. Likewise, the cockpit opening is closed by a cover plate 50 held secure by anchor bolts 51.

As a detail of construction, shown in Fig. 9, the anchor bolts 48 are extended rotatably through the edge portions of the cover plate 47 applied over the hatch opening 46 and are held by collars or shoulders 54 formed thereon against longitudinal movement. At their lower ends these bolts have laterally turned feet 55 adapted to enter slots 56 in the flanges of angle bars or wooden or other types of stiffeners, which are fixed to the top wall about the hatch opening, and on their upper ends the bolts have wrench heads 57 whereby they may be turned to cause the feet to engage within the slots 56 to anchor the cover in place. The slots preferably are inclined to effect a camming action whereby the cover may be drawn down tight and leakage into the hold thus prevented.

The bolts 51 which anchor the cover plate 50 in place are made accordingly as are the bolts 48 and lock the plate in place in the same manner.

To provide for ventilating the engine compart-

ment, a forwardly pointed hood 60 is fixed upon the deck just forward of the cockpit 35. This hood has a top 61 spaced from the deck to provide an intermediate air passage 62. In the top of the hood is a forwardly directed opening 63 for inflow of air, and extended through the deck, within the hood, but forward of the opening 63, is a funnel tube 66 which leads rearwardly through the bulkhead 30 and opens into the engine compartment. Thus, air is admitted for ventilating this compartment. Note that the funnel tube extends into the air passage 62 above the deck to eliminate the entrance of any water into this tube. Water that may enter the hood through opening 63 will be drained off through openings 68 in the opposite side walls of the hood. Opening 68, as in Fig. 12, is preferably equipped with a hinged valve plate 69 to permit outflow but to check inflow of water.

In order that any water that might for any reason enter the boat hull may be drained off, I have provided a scupper tube 70 opening at its forward end through the bulkhead 31 into the cockpit as shown in Fig. 5. At its rear end this scupper tube opens through the stern panel in a downwardly directed manner. In the tube is a pivotally mounted flap valve 75 adapted to close against a shoulder or seat 76 to prevent inflow of water but to open automatically for outflow. It will be readily understood that in travel of the boat there will be a natural suction produced that will keep the hull drained of any water that might leak therein.

For the propulsion of the boat, I have provided the engine 40. This may be any suitable type, and it may be located and supported as shown in Fig. 5 or in any other suitable or desirable position. As here shown, the engine shaft 90 extends forwardly through the bulkhead 30 and is operatively connected by gearing designated at 91 with the propeller shaft 92. Shaft 92 extends through the step portion of the bottom, through a suitable bearing 93 and at its rear end is carried by a bracket 94 and is there equipped with propeller 95.

The steering rudder 96 is fixed on a vertical post 97 revolvable in bearings and at the upper end of the post 97 is a tiller 98 which extends through a slot 99 in the rear end, down curve of the deck, and is operatively connected with a steering control device designated at 100.

It will here be explained that the steering control device may be one of various kind, but it is the intent that it be capable of remote control by known electrical devices not here disclosed. However, the tiller might be operated mechanically by mechanical devices under magnetic control and timed by clock mechanisms of various kind. The prime mover and steering control devices, per se, are not claimed as parts of this invention except as elements of a combination.

The design of this boat provides ample space for the loading of explosive or/and incendiary material such as used for the destruction of ships, docks and installations. Such materials may be placed in the hold of the forward portion of the boat as well as in the cockpit. Space is also provided for the carrying of a tank of fuel oil, such as indicated at 105 just forwardly of the bulkhead 30. It is anticipated that all available space within the boat be used for the explosive and/or incendiary material and for the devices for controlling the engine and steering

operations and the exploding of the explosive material.

Boats of this character of construction may be operated at high speed in high seas and rough water with safety to equipment and will not capsize. Therefore, they are especially suited to the intended use as weapons of destruction. However, when modified to some extent, they are suitable for peacetime uses. Therefore, I have shown in Figs. 8 and 9, a modification of the boat structure especially for peace-time uses. In these views it is to be noted that the cockpit is open and about it a housing 110 is built, providing an open cockpit. The ventilating hood 60 of the boat previously described, is embodied in this structure which extends to the stern to house the tiller lever to which the conventional steering cables or other devices might be attached. This housing provides a streamlining effect that is especially desirable for speed boats. It is to be understood however that this is but one of various modifications in the hull design of the boat shown in Figs. 1 and 2.

Such boats as here have been described are extremely desirable for the purposes stated and in their construction and use, the objects of the invention can be obtained.

Having thus described my invention, what I claim as new therein and desire to secure by Letters Patent is:

1. A boat of the character described comprising a hull having a bottom that is formed, at a location approximately amidships, with a transverse, vertical, rearwardly facing step, and there being lateral pontoons built onto the hull at opposite sides along its aft portion; that part of the bottom that is forward of the said step being

formed with a central, longitudinal keel ridge that merges into a tapered stem, and with that part that is aft of the said step being transversely arched to the full width of the bottom and downwardly and rearwardly sloped, with the aft side edges of the bottom joining with the bottoms of the pontoons to form each with a keel ridge.

2. A boat as recited in claim 1, wherein the bottoms of the pontoons merge gradually into opposite sides of the boat hull and wherein the keel ridge of the forward portion of the bottom and keel ridges of the two pontoons are downwardly sloped in a rearward direction.

3. A boat of the character described comprising a hull having substantially vertical sides, a transom type stern panel, and a bottom that is formed at approximately amidships with a transverse, rearwardly facing step, and having that part of the bottom that is forward of the step formed with a central longitudinal keel ridge leading into a tapered stem, and with the opposite side sections thereof upwardly and laterally sloped to merge with the sides in chines that are inclined upwardly, forwardly and lead into the stem along upwardly curved lines, and having that part of the bottom that is aft of the step transversely arched to the full width of the bottom and downwardly and rearwardly sloped; lateral pontoons built onto the hull at opposite sides along its aft portion; the aft edges of the bottom joining the bottoms of the pontoons at opposite sides of the hull to form longitudinal keel ridges and the bottoms of the pontoons merging gradually into the sides of the boat hull.

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