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J. NAPOLI

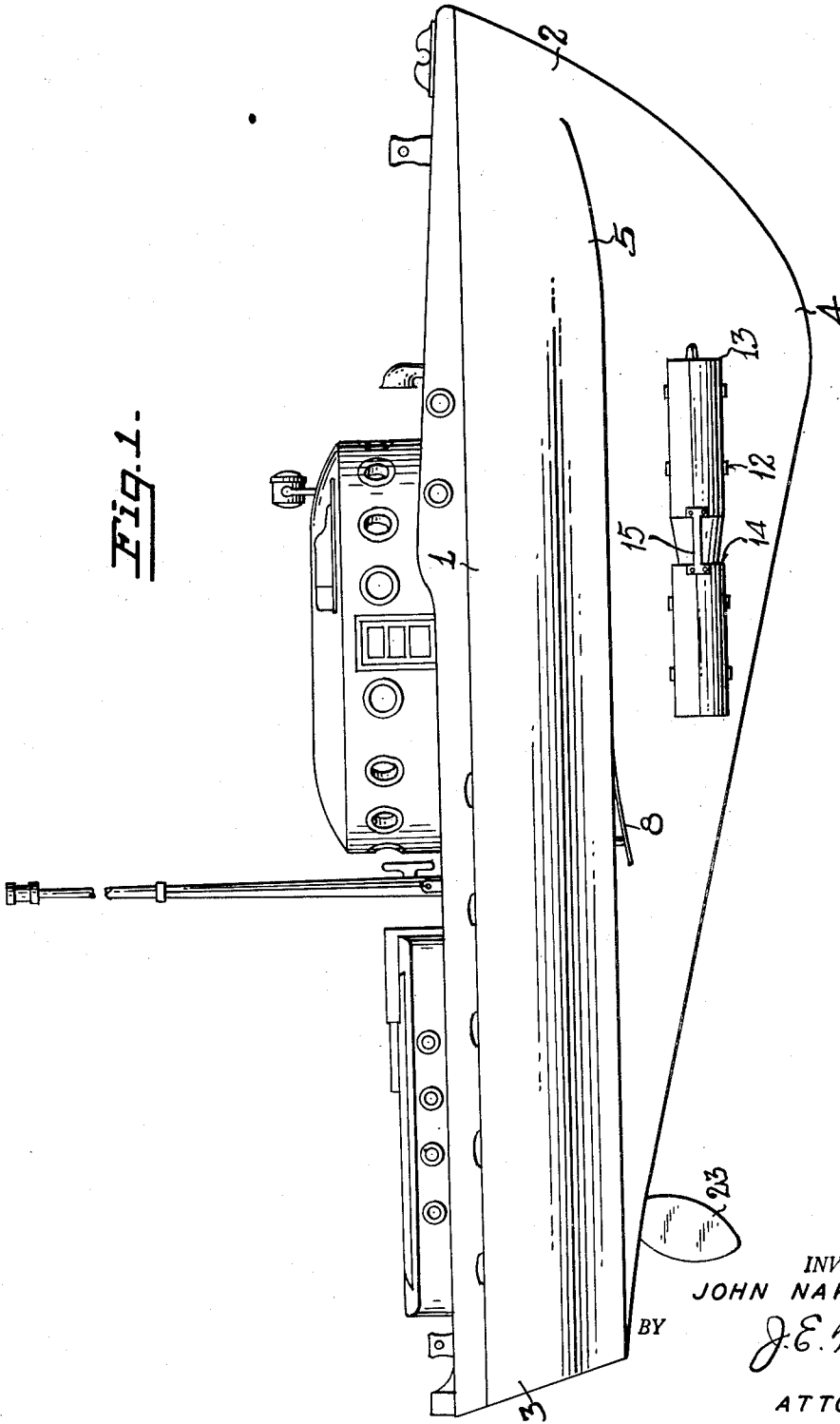
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HULL FORM FOR SPEEDBOATS

Filed Nov. 13, 1945

3 Sheets-Sheet 1

*Fig. 1.*



INVENTOR.  
JOHN NAPOLI

BY *J. E. Diabruzzo*

ATTORNEY

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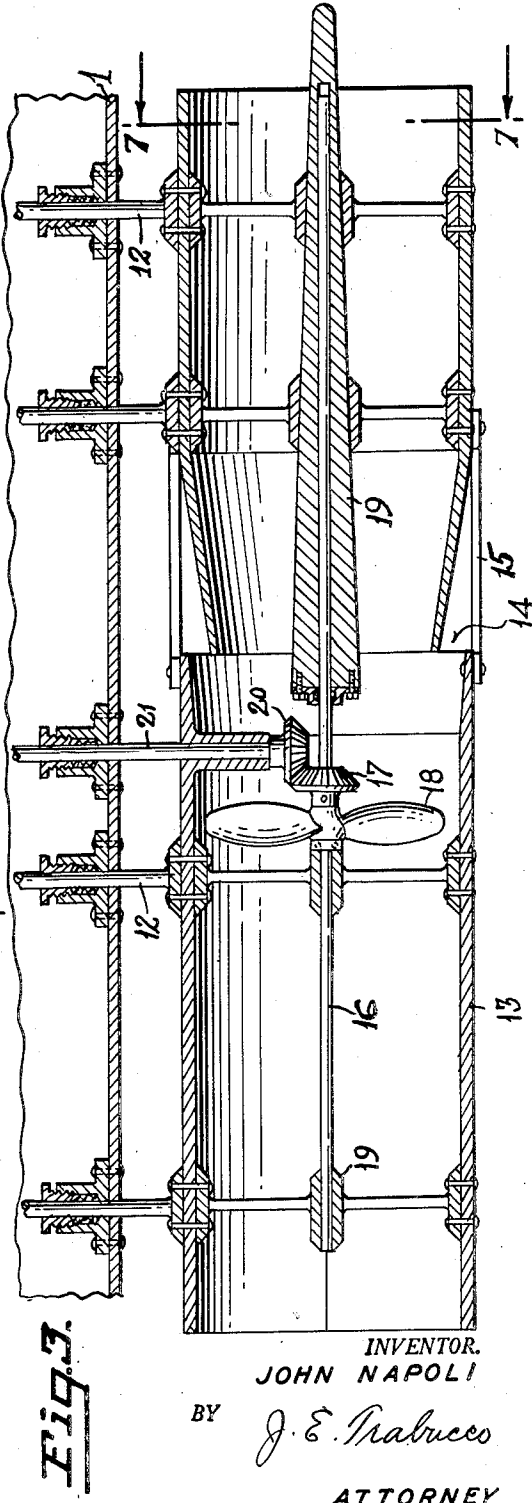
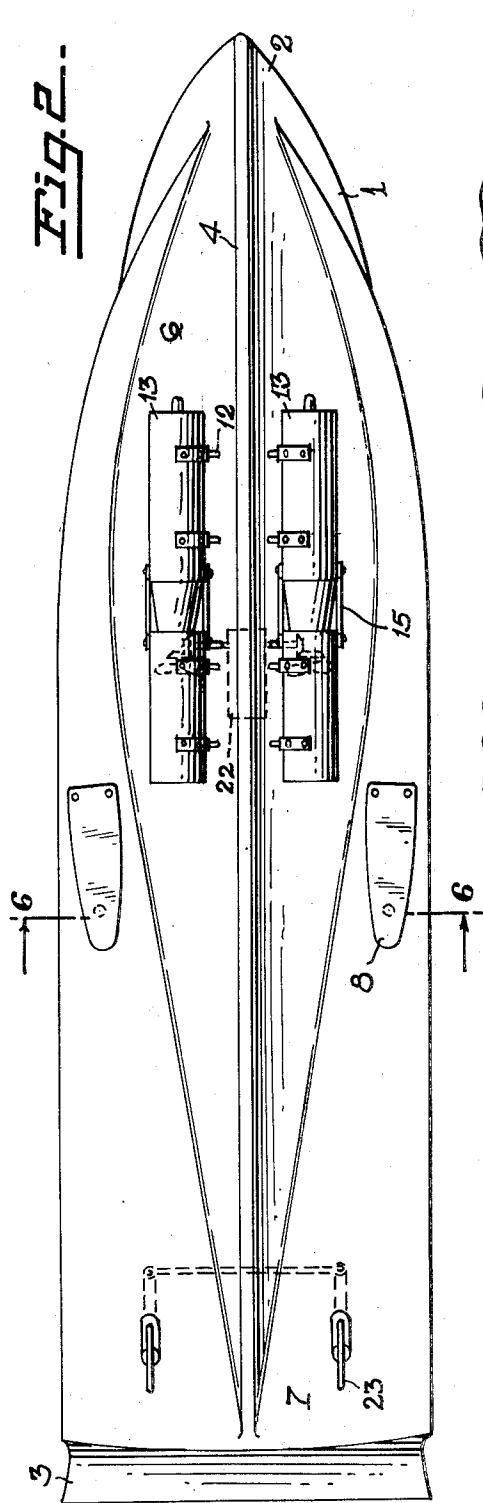
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2,530,718

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Filed Nov. 13, 1945

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Nov. 21, 1950

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2,530,718

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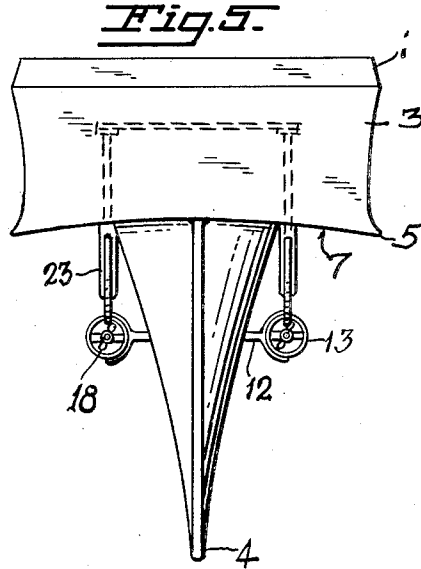
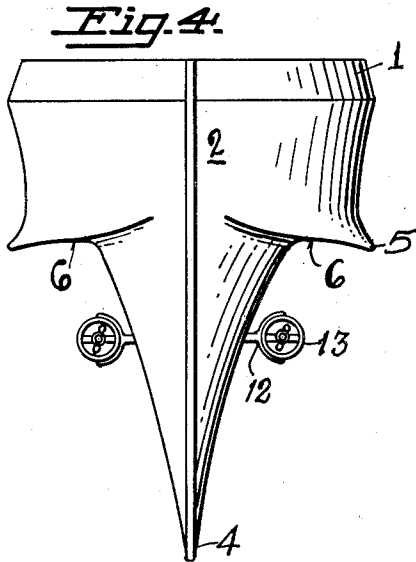


Fig. 7.

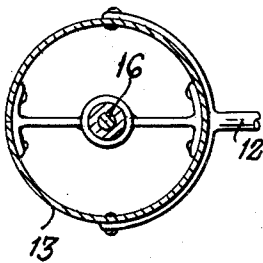


Fig. 6.

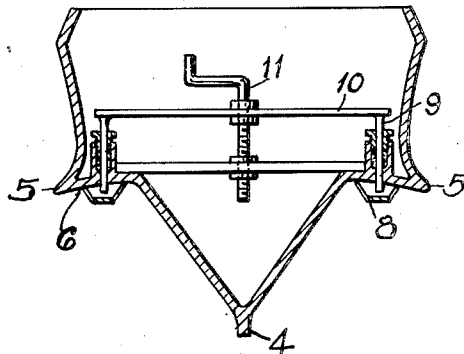
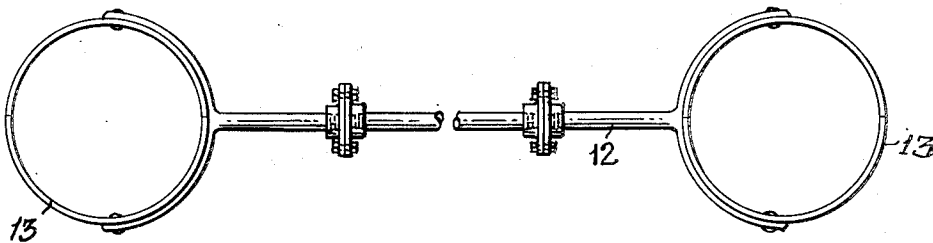


Fig. 8.



INVENTOR.  
JOHN NAPOLI

BY

J. E. Trabucco  
ATTORNEY

# UNITED STATES PATENT OFFICE

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## HULL FORM FOR SPEEDBOATS

John Napoli, Monterey, Calif.

Application November 13, 1945, Serial No. 628,023

1 Claim. (Cl. 114—56)

1

This invention relates to improvements in speed boats.

An object of my invention is to provide a speed boat having a novel shape and construction designed to substantially overcome the resistance of air and water to its forward movement, thereby enabling it to operate economically.

Another object of my invention is to provide an improved speed boat having novel means for maintaining the boat's hull in a substantially horizontal position while traveling at both high and speeds.

A further object of my invention is to provide an improved speed boat having a construction which is capable of utilizing the spray from the bow to support the boat in an operative position near the surface of the water, whereby the resistance normally exerted upon the boat's keel and bottom may be reduced.

Other objects and advantages of the present invention will be pointed out hereinafter, indicated in the appended claim, or will be obvious to one skilled in the art upon an understanding of the present disclosure. For the purpose of this application I have elected to show herein certain forms and details of a speed boat representative of my invention. It is to be understood, however, that the embodiment of my invention herein shown and described is for the purpose of illustration only, and that therefore it is not to be regarded as exhaustive of the variations of the invention.

In the accompanying drawings:

Fig. 1 is a side elevation of a speed boat embodying the preferred principles of my invention;

Fig. 2 is a bottom plan view of the boat;

Fig. 3 is a longitudinal sectional view of one of the propeller units used in the boat's propulsion;

Fig. 4 is a front view of the boat;

Fig. 5 is a rear view of the boat;

Fig. 6 is a vertical sectional view taken on the line 6—6 of Fig. 2;

Fig. 7 is a reduced sectional view taken on the line 7—7 of Fig. 3;

Fig. 8 is a diagrammatic illustration showing the manner in which the propeller tubes are secured in place by bracket means.

My improved speed boat comprises a hull 1 having a deck, a cabin, and various other structures and devices of the usual kind mounted on or carried therein. The hull is formed with a bow 2, a stern 3, and a keel 4, the latter extending downwardly to a considerable depth at a point beneath the bow. The bottom edge of the keel

2

from its stern end slopes gradually toward its lowest forward end. The keel, having its greatest depth at the bow end of the boat, extends well beneath the surface of the water at all times.

When the boat pitches, the usual shock normally accompanying the downward movement of the bow 2 will be substantially absorbed by reason of the forward end of the keel extending well into the water. Instead of there being a sudden jar when the bow of the boat reaches the extent of its downward movement, the keel will gradually submerge and cause the bow to lightly engage with the surface of the water.

The sides of the hull project outwardly as at 5 (Fig. 4), and the underneath sides of said outwardly disposed projecting parts of the hull are curved upwardly toward the bow, thereby providing a longitudinally disposed cylindrical concave or curved surface 6 at each side of the hull which is positioned to intercept a part of the spray resulting from the bow's movement through the water. An upward or bouyant force is exerted upon the opposite sides of the boat when the spray from the bow is directed against the curved surface 6, thereby reducing the resistance offered to the forward movement of the boat and at the same time increasing the boat's stability. The speed of the boat through the water is considerably increased by means of the longitudinal curved surfaces 6 being arranged to intercept the upward thrust exerted by the spray coming from the bow's movement through the water.

The curved surfaces 6 at their rear ends become somewhat flattened and merge into a concave bottom 7 located directly beneath the stern or aft part of the boat. A substantial part of the spray from the bow is directed toward the center of the boat by the curved longitudinal surfaces 6, and the concave bottom surface 7 continues to ride on the centered spray as the boat proceeds through the water, thereby causing the upward pressure to be exerted on the aft portion of the boat as well as on the forward and central portions. The stability of the boat is increased also by reason of the boat's bottom being substantially the same uniform width from its central portion to its stern. With the spray from the bow being directed upon the concave bottom surface 7, there is an upward pressure exerted upon the stern of the boat, thereby preventing the aft part of the boat from submerging deeply into the water as the boat's speed increases.

So as to provide means for causing the boat to assume a substantially horizontal position in the water, irrespective of its speed, there is arranged

near the rear ends of the curved surfaces 5 two resilient inclined fins or plates 3 which are fastened at their forward ends to the boat. Suitable means in the form of vertical rods 9 carried by a cross bar 10 which may be elevated and lowered by a screw 11, is provided for causing the resilient fins 8 to be moved upwardly or downwardly to decrease or increase the degree of their inclination (Fig. 6). The lower ends of the rods 9 engage with the upper surfaces of the resilient fins 8, and as the screw 11 is actuated to lower the bar 10, the fins are moved to increase their inclination, and when the screw is turned to raise the bar, the rods 9 are also moved in the same direction, thereby permitting the resilient fins to automatically assume more level positions. As the pitch of the fins is increased there is exerted a greater upward pressure thereon by the spray from the bow and the water beneath the boat, thereby causing the rear end of the boat to be elevated with respect to the forward end. Thus by controlling the slope of the fins the boat's position with respect to the horizontal may be regulated.

Supported at opposite sides of the boat as by brackets 12 are two open propeller tubes 13. It will be seen from Fig. 8 that each of the brackets 12 consists of several parts which are bolted together. The ends of the brackets are semi-circular in shape and extend partially around and are secured to the tubes 13. The parts of each bracket located between its semi-circular ends preferably pass through the hull of the boat. The propeller tubes are arranged in substantially parallel positions with respect to the boat's longitudinal center line, and each is made in two sections with an annular opening 14 provided for the intake of water at points intermediate its ends. The two sections are held in fixed relative positions by straps 15.

Axially arranged in each tube 13 is a shaft 16 having a bevel gear 17 and a propeller 18 secured thereto. Each shaft 16 is rotatably supported in bearings 19 which are streamlined. In mesh with the bevel gears 17 are similar gears 20 secured to shafts 21 which are connected in the usual manner to the boat's engine or power plant 22. The rotation of the propellers 18 causes the boat to proceed through the water in the usual manner.

A duplex rudder system 23, controlled in the usual manner from the control room inside the boat, is provided at the stern.

What I claim is:

In a speed boat, a hull having a pointed bow and outwardly disposed side members extending longitudinally at its opposite sides, the side members having upwardly curved longitudinally disposed cylindrical concave surfaces at their under sides for intercepting a part of the spray made by the bow when the boat proceeds forwardly through the water, the said hull having a substantially V-shaped bottom portion located between the side members with the forward end of the V-shaped portion extending substantially beneath its rear end, a stern portion on the hull having a concave bottom surface joining the concave surfaces of the side members, and a keel arranged centrally on the V-shaped portion of the hull, the said keel being curved at its lower edge with its lowest point being located near the bow end of the boat and its highest point being located between the duplex concave bottom surfaces, the forward end portion of the keel extending substantially below the level of the side members and also substantially below the rear end portion of the said keel.

JOHN NAPOLI.

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