United States Patent [19]

Takahashi

[11] **3,884,172**

[45] **May 20, 1975**

[54] **HYDROPLANE BOAT**

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[22] Filed: **Jan. 2, 1974**

[21] Appl. No.: **429,592**

[52] **U.S. Cl.** ..... **114/66.5 R;** 114/39

[51] **Int. Cl.** **B63b 1/18**

[58] **Field of Search** ..... 114/39, 66.5 R, 102, 235 R; 244/35 R, 105, 106, DIG. 1; D12/2, 3, 62, 64, 75

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[57] **ABSTRACT**

An improved hydroplane boat comprising a triangular swelling plane, above the hull, having two pivotal ailerons and a vertical fin with a pivotal auxiliary rudder, the ailerons operatively connecting with footpedals by lines through pulleys, the auxiliary rudder operatively connecting with a control lever by an endless line laid on other pulleys, so that plane lift can be controlled by the footpedals and the control lever to lighten the rear load of the outboard motor, etc., in weight, with assurance of high speed and safe control.

4 Claims, 6 Drawing Figures

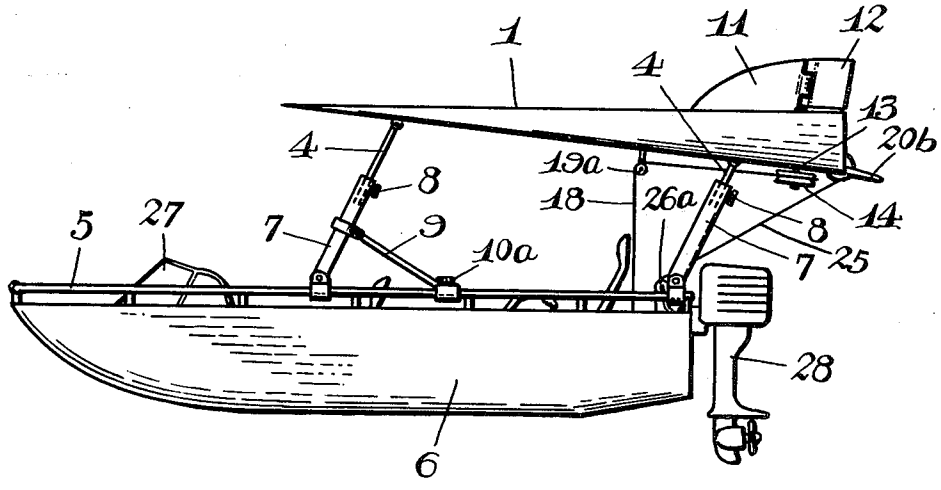


FiG. 1

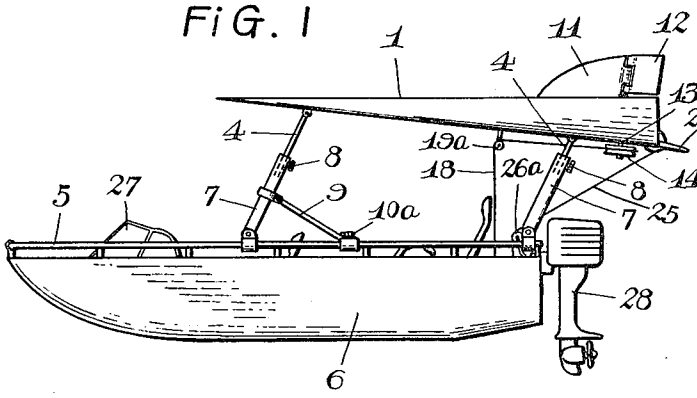


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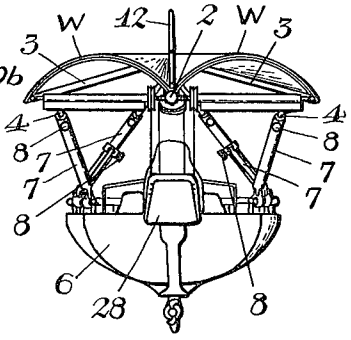


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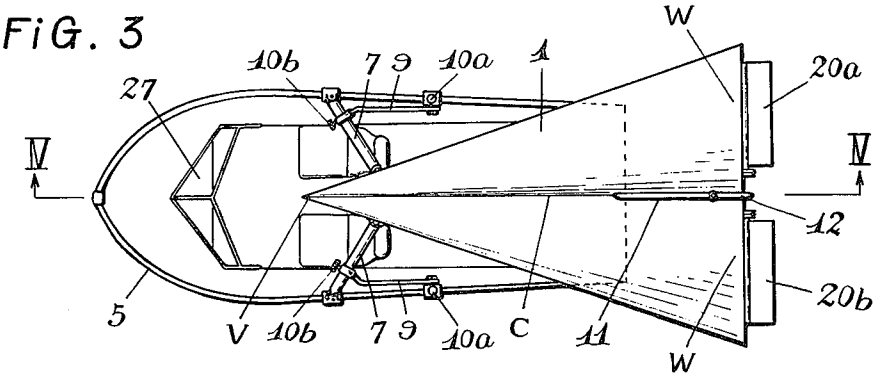


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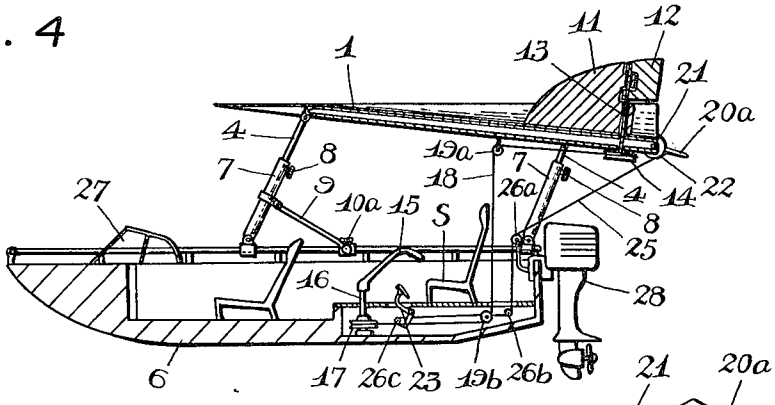


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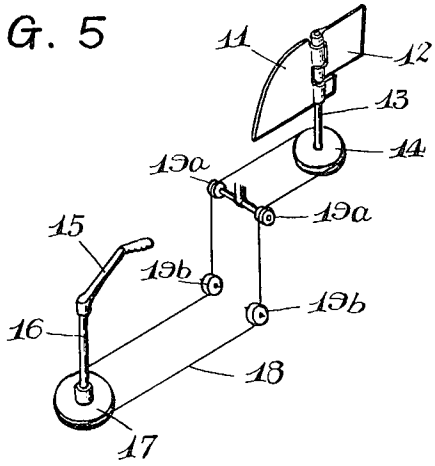
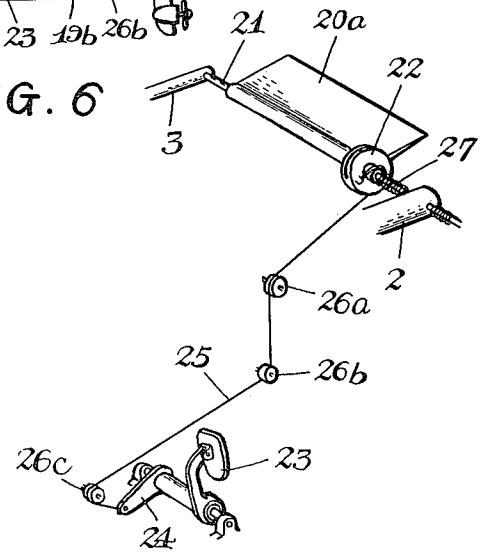


FiG. 6



HYDROPLANE BOAT

BACKGROUND OF THE INVENTION

1. FIELD OF THE INVENTION

This invention relates to U.S. Class 114 sub-class 66.5, namely hydroplane boats.

2. DESCRIPTION OF THE PRIOR ART

Generally the hydroplane boat is equipped with the heavy outboard motor as the power boat with the center of gravity extremly deviating to the stern, so that heavy drag is apt to hinder higher speed and to lose balance when turning.

Whereas this invention provides an improved hydroplane boat having the triangular swelling plane supported above the hull, the plane having two ailerons and the upright fin with the auxiliary rudder, so that plane lift will raise the stern to decrease drag and to acccelerate speed with full balancing of the ailerons and the auxiliary rudder.

BRIEF SUMMARY OF INVENTION

This invention provides an improved hydroplane boat comprising the triangular swelling plane having the ailerons and the fin with the auxiliary rudder, the plane being possible to adjust its location, height and elevating angle, the ailerons being pivotally controlled by the footpedals, the auxiliary rudder being pivotally controlled by the control lever, so that proper plane lift will lighten the rear load of the outboard motor in weight and drag to make sure of higher speed under safe control of balance.

BRIEF DESCRIPTION OF DRAWING

FIG. 1 is a side elevation of an improved hydroplane boat of this invention;

FIG. 2 is a rear elevation thereof;

FIG. 3 is a top plan view thereof;

FIG. 4 is a cross-section along the lines IV—IV of FIG. 3;

FIG. 5 is a perspective top view of a control mechanism for a rudder;

FIG. 6 is a perspective top view of a control mechanism for an aileron.

DETAILED DESCRIPTION OF INVENTION

Referring now to FIGS. 1 to 4, there is a triangular swelling plane 1 which is made of light alloys, plastics or sail cloths, etc., and which spreads to slope up from a center chord C symmetrically to a right and left span and then downwardly to form inverted U-shaped flying wings W and an apex angle V which is directed toward the bow.

A center rod 2 extends along the center chord C beneath the plane 1.

Two branch rods 3 are projected from the center rod 2 along and beneath the oblique lines of the triangular plane 1.

Four dangling rods 4 are pivotally hung from the branch rods 3 front and rear as well as right and left symmetrically.

A handrail 5 is mounted along the gunwale of the hull 6.

Four leg pipes 7 have respective upper ends into which are inserted the lower ends of the rods 4 to slide and be set with screws 8.

The lower ends of the pipes 7 are pivotally connected with the handrail 5 to slide therealong.

Two support rods 9 have ends which are respectively set at the handrail 5 and the pipes 7 with screws 10*a*, 10*b*.

Hence the plane 1 can be rearranged in location, height and elevating angle by adjusting the rods 4, 9 and the pipes 7 by means of screws 8, 10.

An upright fin 11 is mounted on the center rod 2 at the rear of the center chord C to project out of the plane 1.

An auxiliary rudder 12 is pivotally joined to the rear side of the fin 11 with a vertical axis 13.

A pulley 14 is fixed at the lower end of the axis 13. (see FIG. 5)

A control lever 15 is connected with a shaft 16 which is pivotally mounted on the hull-bottom before a seat S.

A pulley 17 is fixed about the lower part of the shaft 16.

An endless line 18 is laid between the pulleys 14 and 17 through small pulleys 19*a*, 19*b*.

Hence the lever 15 can be controlled to let the auxiliary rudder 12 pivot right or left through movement of the line 18.

Ailerons 20*a*, 20*b* are pivotally joined to the rear side of the plane 1 and fixed to a horizontal axis 21 which is bridged through the rods 2, 3. (see FIG. 6)

Pulleys 22 are fixed about the axis 21 between the ailerons 20 and the center rod 2.

Footpedals 23 having arms 24 are mounted before the seat S on the hull-bottom.

Lines 25 are connected with the pulleys 22 and the arms 24 of the footpedals 23 through small pulleys 26*a*, 26*b*, 26*c*.

Coil springs 27 are respectively set about the axis 21 between the pulleys 22 and the center rod 2 to urge the ailerons to given angular positions.

Hence the footpedals 23 can be controlled to let the ailerons 20*a*, 20*b* pivot up or down respectively through movements of the lines 25.

Accordingly the improved hydroplane boat of this invention makes sure of not only higher speed with proper plane lift lightening the rear load but also stable control with fully balancing the hull by the ailerons and the auxiliary rudder.

As many embodiments of this invention may be made without departing from the spirit and scope thereof, it is to be understood that the invention includes all such modifications and variations as come within the scope of the appended claims.

What I claim is:

1. An improved hydroplane boat comprising a triangular swelling plane above the hull, the plane sloping gently first upwardly from a center chord, symmetrically to a right and left span, and then downwardly at each span, and said plane having an apex angle directed toward the bow of the boat, a center rod being situated along the center chord beneath the plane, two branch rods projecting from the center rod, a handrail mounted on a qunwale, four rods connected with the branch rods and the handrail to slide therealong and be set at a predetermined location, a fin mounted upright on the rear center of the plane, an auxiliary rudder pivotally joined to the fin, ailerons pivotally joined to the rear side of the plane, a control lever operatively connecting with the auxiliary rudder, and footpedals on a hull-bottom operatively connecting with the ailerons.

2. The improved hydroplane boat, as set forth in claim 1, wherein said four rods are composed of four rods which are pivotally hung from the branch rods and which have lower ends which are inserted into four pipes, said pipes having lower ends which are pivotally and slidably connected with the handrail, the pipes being supported by support rods which can be set at the handrail with screws respectively.

3. The improved hydroplane boat, as set forth in claim 1, wherein said auxiliary rudder is pivotally joined to the rear side of the fin with an upright axis the lower end of which is fixed to a pulley, said control lever being connected with a shaft which stands pivotally on the hull-bottom and the lower part of which is

fixed with another pulley, said pulleys being interconnected by an endless line through small pulleys.

4. The improved hydroplane boat, as set forth in claim 1, wherein said ailerons are pivotally joined to the rear side of the plane and fixed to a horizontal axis which is bridged through the center rod and the branch rods, the axis having respective pulleys between the ailerons and the center rod, said pulleys being connected respectively to lines which connect with arms of the footpedals on the hull-bottom through small pulleys, said axis having coil springs between said pulleys and the center rod, respectively, to urge the ailerons to given angular positions.

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