Nov. 12, 1957 M. A. FRY 2,812,736

POWER DRIVEN SURF BOARD

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Fig. 1

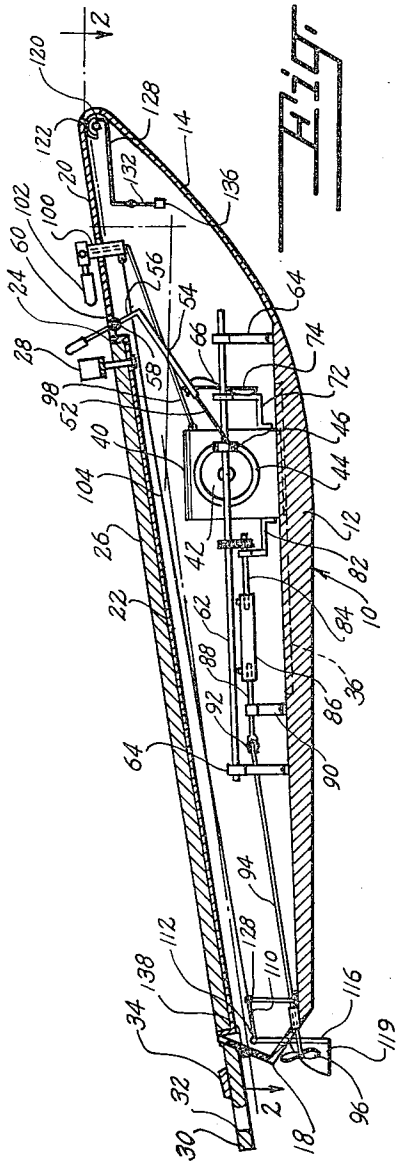
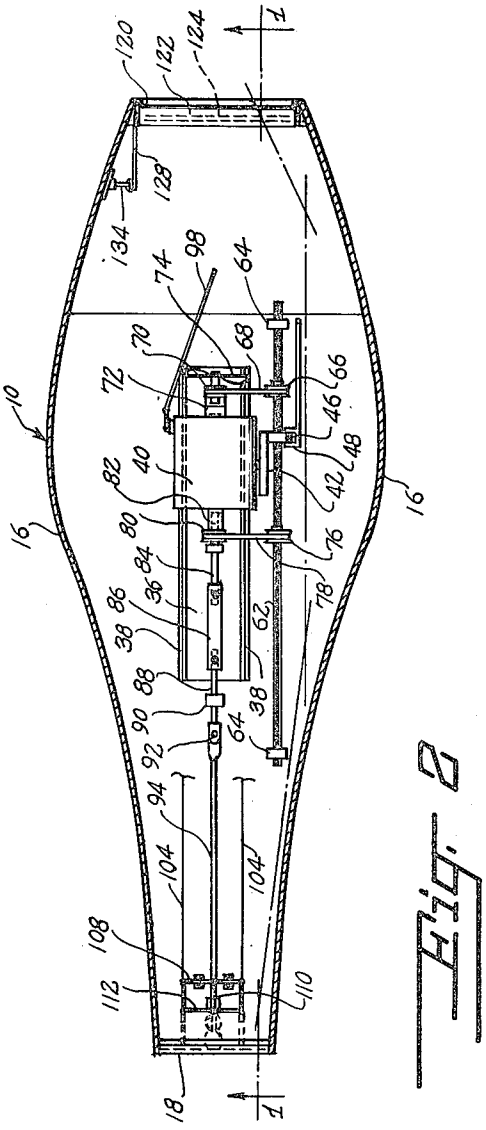


Fig. 2



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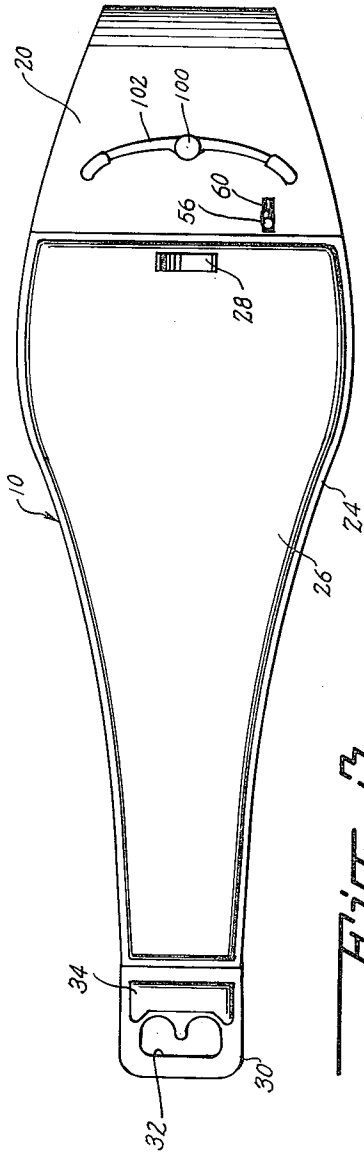


Fig. 3

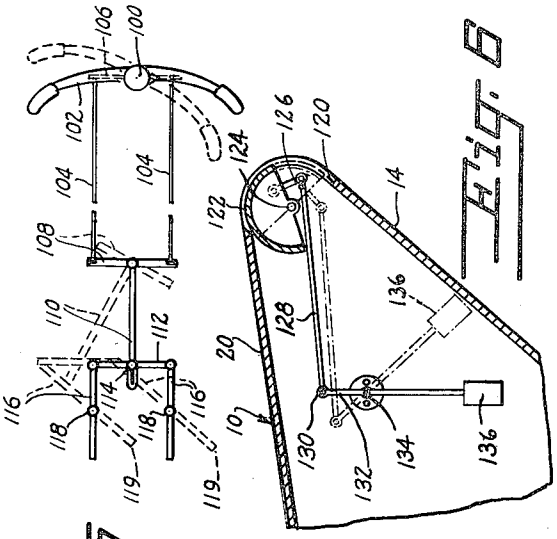


Fig. 6

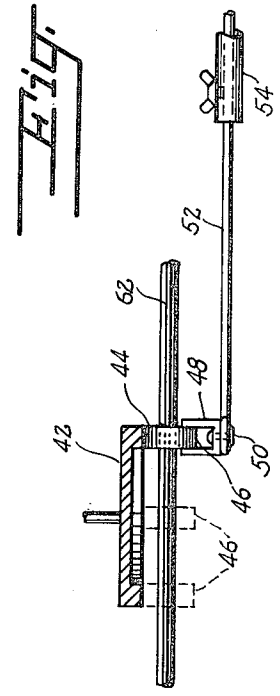


Fig. 5

Fig. 4

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POWER DRIVEN SURF BOARD

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Application November 19, 1954, Serial No. 469,901

2 Claims. (Cl. 114—124)

This invention relates to surf board construction, and more particularly has reference to a surf board or related small boat on which the rider may be supported in a prone position.

The main object is to provide a generally improved water craft of the type stated which can be used to afford a particularly high amount of individual pleasure, can be used in many types of water sports, and, further, can be operated as well as constructed at a relatively low cost.

More specific objects of the invention are to provide an air intake means for a closed hull of a boat of the type referred to, through which air is drawn to cool the motor, with said air intake means being so designed as to open automatically whenever the bow is lifted clear of the water; to provide a motor and associated drive means which can be bodily shifted longitudinally of the hull to provide a selected balancing of the hull, whereby to equalize weight and thus adapt the surf board for use by different individuals; provide an improved combination steering and throttle mechanism; and to provide a comfortable support of improved design for the prone operator.

Other objects will appear from the following description, the claims appended thereto, and from the annexed drawing, in which like reference characters designate like parts throughout the several views, and wherein:

Figure 1 is a longitudinal sectional view substantially on line 1—1 of Figure 2;

Figure 2 is a plan section substantially on line 2—2 of Figure 1;

Figure 3 is a top plan view;

Figure 4 is an enlarged, fragmentary, detail section showing the drive assembly whereby the drive can be placed in forward, neutral, and reverse positions;

Figure 5 is a top plan view of the steering mechanism per se, portions being broken away, the full and dotted lines showing different positions of said mechanism; and

Figure 6 is an enlarged, fragmentary, longitudinal sectional view through the bow of the boat of the automatically operable air intake control device, the full lines showing such device in open position and the dotted lines showing such device in closed position.

A hull 10, having a substantially flat bottom 12, is formed with a scow type bow 14, sides 16 bowed outwardly along curving lines adjacent the bow and converging toward the stern, and a stern 18, having an obtusely angular vertical section as best shown in Figure 1. A deck 20, inclined from the horizontal when the boat is normally positioned, is provided at the bow, and terminates at its rear edge a relatively short distance from the forward extremity of the craft. Abutting against the rear edge of deck 20 is a deck plate 22 extending the rest of the way to the stern, and having side edges registering with the side walls 16. A low, upwardly extending, peripheral flange 24 on plate 22 defines a shallow recess over the full area of the deck plate, and seating snugly in said recess is a cushion or pad 26 on which the rider may be comfortably supported in a prone position. A chin rest 28 extends upwardly through plate 22 adjacent

the front end of pad 26, and in a rearwardly extending foot support board 30 projecting beyond stern 18 there are formed communicating foot-receiving holes 32 immediately in front of which is an ankle support pad 34.

Formed in bottom 12 is an elongated, shallow, wide motor well 36 extending longitudinally and centrally of the hull and having along its opposite sides slideways 38 on which a small, air-cooled internal combustion engine 40 is slidably mounted for adjustment longitudinally of the hull, whereby to equalize weight and provide a proper balance according to the desires of the particular user.

A flywheel 42 of motor 40 is faced laterally of the hull at one side of the motor, and has a peripheral flange 44 (Figure 4) frictionally engaging the periphery of a drive wheel 46 straddled by a shifting yoke 48 pivotally connected at 50 to a sectionally formed control rod 52 the length of which may be adjustable through the provision of a connecting sleeve 54 in which the sections of rod 52 are telescopically adjustable. At its forward end, rod 52 is pivotally connected (Figure 1) to the lower end of a shifting handle 56 fulcrumed intermediate its ends as at 58 to swing about a horizontal axis extending transversely of the hull, and having its upper portion projecting through a slot 60 of deck 20. The rider, by swinging handle 56 about its fulcrum, adjusts drive wheel 46 to any of three positions shown in Figure 4. In its full line position, wheel 46 will be rotated in one direction, to effect forward movement of the water craft. In its middle position it will be out of engagement with the flywheel flange and will not be propelled either forwardly or rearwardly by motor 40. In the dotted line position at the left of Figure 4, wheel 46 will be rotated in a direction to move the boat or surf board rearwardly.

Wheel 46 is splined on a spline shaft 62 journalled at its ends in bearings 64 supported on the bottom 12. Also splined on shaft 62 is a fan drive pulley 66 about which is trained belt 68 driving a pulley 70 mounted on a bracket 72 secured to the motor housing, the pulley 70 rotating a shaft on which is provided a cooling fan 74.

A propeller drive pulley 76, also splined on shaft 62, has a belt 78 trained thereabout. Belt 78 drives a driven pulley 80 rotating a driven shaft journalled in a bracket 82 carried by the motor housing. Said shaft is designated at 84 and adjustably telescopes in a connecting sleeve 86, in the other end of which is adjustably telescoped a shaft member 88 journalled in a bearing 90 and connected by universal joint 92 to a propeller shaft 94, rotating in a sleeve mounted in the stern and having at its rearwardly projecting end a propeller 96 for driving the water craft.

When the motor is adjusted longitudinally of the water craft, it carries with it pulleys 66 and 76, and suitable adjustments are made through the medium of connecting sleeve 86 in the length of the propeller drive shaft. Further, suitable adjustments are made in the length of the operating rod 52 through the medium of connecting sleeve 54, which is similar to the sleeve 86.

The motor speed is controlled by a throttle cable 98, extending through a generally vertical steering column 100 rotatably mounted in deck 20 and secured at its upper end to a transversely extending steering handle 102, the left handle grip of which is rotatable so as to twist cable 98 in a manner to control the motor speed.

A pair of steering cables 104 extend longitudinally of and within the hull, and are connected at their front ends to the opposite ends of a front steering bar 106 extending diametrically of and secured medially between its ends to the rotatable steering column 100. At their rear ends (Figure 5) cables 104 are connected to the opposite ends of a second steering bar 108, pivoted about a vertical axis intermediate its ends and rigidly connected, at the location of its axis, to a connecting bar 110 extending longi-

tudinally of the hull. Connecting bar **110**, at its rear end, is connected to the midlength portion of a third steering bar **112**, through the medium of a lost motion or sliding pivotal connection **114**. At its opposite ends, bar **112** has pivotal connections to the front ends of rudder bars **116** secured at their rear ends to vertically disposed, transversely spaced, twin rudder shafts **118** journalled in stern **18** and projecting out of the stern. Rudders **119** are secured to the projecting portions of the shafts **118**.

By turning the steering handle in a selected direction, as for example to the dotted line position of Figure 5, the twin rudders are turned to steer the boat in a corresponding direction.

Means is provided for venting the interior of the boat to provide air for the motor cooling fan. To this end, at the bow there is provided a transverse air vent opening **120** extending the full width of the bow. Extending transversely of the bow from end to end of said opening is a semicylindrical air vent closure or damper **122** (Figures 2 and 6) rotating on a transversely extending shaft **124**. Fixed to the closure **122** is a short finger **126**, pivotally connected to the front end of a link **128**, the rear end of which is pivotally connected at **130** to the upper end of a vertically depending arm **132** fulcrumed adjacent its upper end on a stub shaft **134** projecting laterally from one side of the hull as shown in Figure 2. At its lower end, arm **132** is connected to a weight **136**.

When the craft lies normally in the water in its Figure 1 or Figure 6 position, with its nose elevated, the closure **122** is in open position as shown in Figure 6. When, however, the nose dips, arm **132**, remaining vertically positioned, will cause closure **122** to turn in a clockwise direction about its axis **124**, through 45 degrees, thus closing the air intake vent **120** against the admission of water into the hull.

At the rear end, the hull has a screened opening **138** constituting an air outlet opening. Thus, air entering through the normally open vent **120** is drawn longitudinally of and within the hull by the fan **74** to cool the motor and is expelled through the opening **138**.

It is believed apparent that the invention is not necessarily confined to the specific use or uses thereof described above, since it may be utilized for any purpose to which it may be suited. Nor is the invention to be necessarily limited to the specific construction illustrated and described, since such construction is only intended to be illustrative of the principles, it being considered that the invention comprehends any minor change in construction

that may be permitted within the scope of the appended claims.

What is claimed is:

1. A water craft comprising a hull; a longitudinal slideway within the hull, a motor mounted on said slideway, for adjustment of the motor longitudinally of the hull to selected positions, whereby to effect a predetermined distribution of weight along the hull; a drive propeller; and a driving connection between the motor and propeller, said driving connection being longitudinally extensible to permit said adjustments of the motor, said driving connection including a flywheel on the motor, a spline shaft extending longitudinally of the hull adjacent the motor, a drive wheel engaged with the fly wheel for rotation by the fly wheel and slidable longitudinally of the spline shaft, a drive pulley also splined on the shaft to shift longitudinally thereof, a driven shaft supported on said motor for movement with the latter, a driven pulley on said driven shaft and drivingly connected to said drive pulley, and a longitudinally extensible propeller shaft connecting said driven shaft to said propeller.

2. A water craft comprising a hull; a longitudinal slideway within the hull, a motor mounted on said slideway, for adjustment of the motor longitudinally of the hull to selected positions, whereby to effect a predetermined distribution of weight along the hull; a drive propeller; and a driving connection between the motor and propeller, said driving connection being longitudinally extensible to permit said adjustments of the motor, said driving connection including a flywheel on the motor, a spline shaft extending longitudinally of the hull adjacent the motor, a drive wheel engaged with the fly wheel for rotation by the fly wheel and slidable longitudinally of the spline shaft, a drive pulley also splined on the shaft to shift longitudinally thereof, a driven shaft supported on said motor for movement with the latter, a driven pulley on said driven shaft and drivingly connected to said drive pulley, and a longitudinally extensible propeller shaft connecting said driven shaft to said propeller.

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