

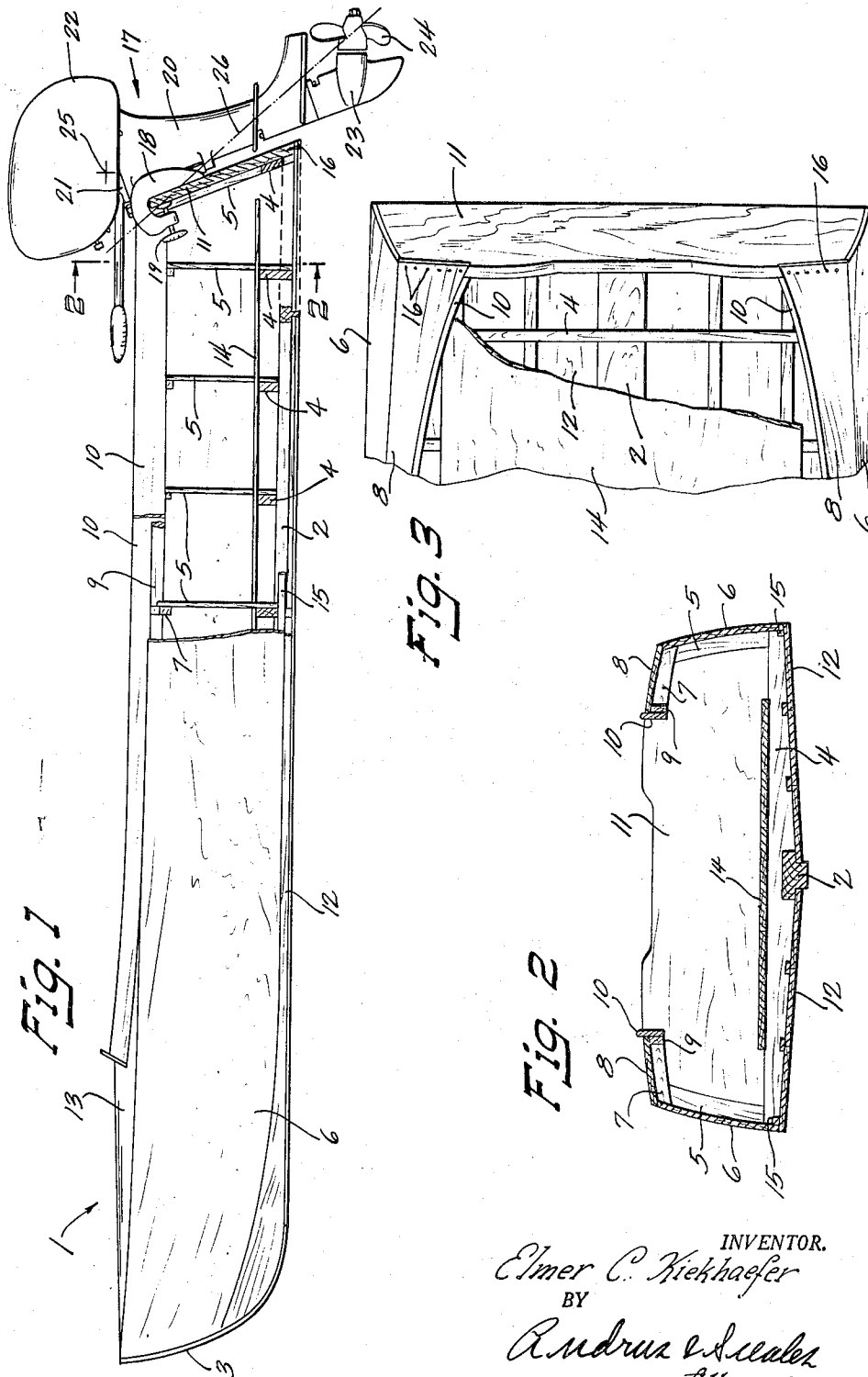
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OUTBOARD MOTOR BOAT

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OUTBOARD MOTOR BOAT

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1 Claim. (Cl. 114—57)

This invention relates to outboard motor boats and particularly to the construction of the boat hull to provide a faster and more serviceable boat.

An object of the invention is to support more directly the weight of the motor particularly respecting the operation of the boat at high speeds over rough water.

A further object is to carry the weight of the motor nearer the center of balance of the boat and in counter-balance to the thrust of the propeller.

Another object is to locate securely the transom within the framework of the hull including the deck, and secure the transom against pulling out from the hull.

These and other objects and advantages will be more fully set forth in the following description of a preferred embodiment of the invention.

According to the invention the motor is supported by the transom of the boat hull so as to be more conveniently disposed and so that the forces to which the transom is subjected by the motor in operation will be transmitted through the transom to the boat hull without affecting the securement of the joints of the hull. The transom is provided with a forward rake whereby the top part of the transom to which the motor is secured is set forwardly of the lower part of the transom. The weight of the motor which is "outboard" is then disposed above the transom and carried directly thereby and the engine at the upper end of the motor remains "outboard" but is disposed nearer the operator's position in the cockpit and nearer the center of balance of the boat.

In the drawings:

Figure 1 is a side view of the outboard motor and boat with parts of the hull removed and sectioned to show features of the construction thereof;

Fig. 2 is a transverse vertical cross-section of the boat on line 2—2 of Figure 1 looking rearwardly and with the motor removed from the transom; and

Fig. 3 is a top plan view of the rear of the boat and with parts thereof broken away and sectioned.

The boat 1 shown in the drawings is of conventional frame construction in part and includes the keel 2 and the stem 3. The cross-frames 4 are notched to fit over keel 2 and are secured thereto on spaced centers. The upright frame members 5 are secured at their lower ends to the outer ends of the frames 4 and support the side planking 6. The outer ends of the beams 7 which support the deck planking 8 are secured to the corresponding upper ends of uprights 5. The inner ends of beams 7 carry the headers 9 and coamings 10 which latter form the sides of the boat cockpit. The transom 11 of the boat is secured to the keel 2 at the rear thereof. The shape of transom 11 corresponds to the sheer lines of the boat as defined by the outlines of frames 4 uprights 5 and beams 7. The bottom planking 12 is secured to keel 2 and frames 4 and extends the length of the boat from stem 3 to transom 11. The rear deck planking 13 is applied to beams 7 to extend on each side of the boat cockpit. The forward deck 14 closes the forward part of the boat against spray. The cockpit floor 15 is secured

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over frames 4. The members 15 extend the length of the boat along the chines of the boat where the bottom planking 12 overlaps the sides 6.

The sides 6 and planking 8 and 12 overlaps transom 11 and are secured by suitable fastenings or screws 16 to the transom insuring a water-tight joint therebetween.

Transom 11 is adapted to receive the outboard motor unit 17, as will be described, and comprises a solid or laminated member of the strength and rigidity necessary to carry the weight and thrust of the motor unit.

The motor unit 17 is secured to transom 11 by the clamp bracket 18 which fits over the upper edge of the transom at the rear of the boat cockpit. One or more turn-screws 19 secure bracket 18 to the transom and allow for removal of the motor unit from the boat.

The motor unit 17 shown in the drawings includes the drive shaft housing 20 which is pivotally supported by clamp bracket 18, as will be described.

The engine 21 secured to the upper end of housing 20 is generally enclosed by the cowl 22. The underwater gear case 23 is fixed to the lower end of housing 20 and carries the propeller 24 rearwardly of the boat. The elements of the motor unit supported by bracket 18 comprise, generally considered, a rigid assembly having a center of mass which is located as at 25 and rearwardly of bracket 18.

The boat shown and described is of lightweight construction for high speed operation and at high speed rides over the water. Each wave or swell of the water which the boat passes over tends to lift and drop the boat. The impacts resulting at high speeds are referred to as pounding which in choppy water, for example, subjects the transom to repeated unsustained loads many times the normal weight of the motor. That is, the weight of the motor as carried by the transom 11 is momentarily increased with each impact of the wave and the securement of the transom to the other parts of the boat is stressed accordingly.

As a second consideration, the thrust of propeller 24 is in a forward direction and is transmitted through the motor unit and clamp bracket 18 to transom 11 with an angular component shown by line 26 which passes through propeller 24 and some part of the bracket 18. The angle between line 26 and the direction of thrust of the propeller indicates the extent to which the propeller thrust tends to lift the front of the boat. The resistance of the boat to movement results in a corresponding torsional force to which the transom 11 is subjected and which in the ordinary boat stresses the joints between the transom and the boat planking and framework until the joints are open and leaking or the transom and motor unit are insecure. The torsional force referred to is in a direction which tends to twist or tilt the transom on a transverse axis, pulling the upper part of the transom outwardly of the boat.

According to the present invention, transom 11 is disposed to support motor unit 17 whereby the torsional effect of the propeller thrust is substantially reduced and, whereby the propeller thrust is at least partially counter-balanced by the weight of the motor so that at no time are the two forces acting together against the transom and the fastening means securing the transom to the boat hull.

As distinguished from boats of conventional construction, transom 11 is raked or angularly disposed forwardly and upwardly whereby the upper end of the motor unit is carried forwardly so as to be located nearer the operator within the cockpit and with the lower end of the motor and the propeller disposed underwater and further rearwardly of the boat transom.

In the drawings, transom 11 slants forwardly and upwardly and is disposed at a 20° angle respecting a ver-

tical transverse plane. Motor unit 17 is carried by transom 11 so that the center of mass 25 of the motor is disposed above and forwardly of at least the lower part of transom 11 secured to keel 2 and planking 12. That is, transom 11 extends beneath the center of mass and gravity of motor unit 17 so as to be carried or supported directly by the bottom planking 12 therebeneath and substantially independently of the fastening means therebetween. Any stressing of the joints secured by such fastening means is thus effected by the supported weight of the motor which tends only to tilt the transom forwardly in opposition to the effect of propeller thrust described above. The propeller thrust itself which is in a direction tending to pull the upper part of the transom outwardly has the effect of pushing the lower part of the transom against planking 12 thereby tightening the joint therebetween.

At high speeds the thrust of the propeller tends to lift the forward portion of the boat as described so that the boat tends to be supported by the water passing under only the rear portion of the boat. The transom is thus disposed to carry the weight of the motor immediately above the rear portions of bottom planking 12 whereby the weight is more directly supported by the planking allowing a framework of lighter construction.

Various embodiments of the invention may be employed within the scope of the accompanying claim.

I claim:

In an outboard motor boat, a motor unit having a drive shaft housing and bracket means pivotally supporting said housing, an underwater gear case fixed to the lower end of said housing and having a propeller, and an engine fixed to the upper end of said housing and operative to drive said propeller, said unit being angularly

disposed so that its center of gravity is approximately located above said bracket; said boat having a transom receiving said bracket means secured thereto at the upper edge thereof and supporting the motor unit, said transom having a forward rake so that the lower edge thereof is located below and rearwardly of the center of gravity of the motor unit respecting the forward direction of propeller thrust, said boat further including a framework and outer planking secured to said framework, said planking extending rearwardly over the side edges and beneath the lower edge of the transom, and means fastening the ends of said planking to the transom to effect and maintain a tight seal at the joints therebetween, said outboard motor boat being characterized by the fact that the several forces upon the transom effected by the thrust of the propeller and by the weight of the motor respectively are in opposed relation and the strain imposed upon said fastening means at said joints is substantially reduced.

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