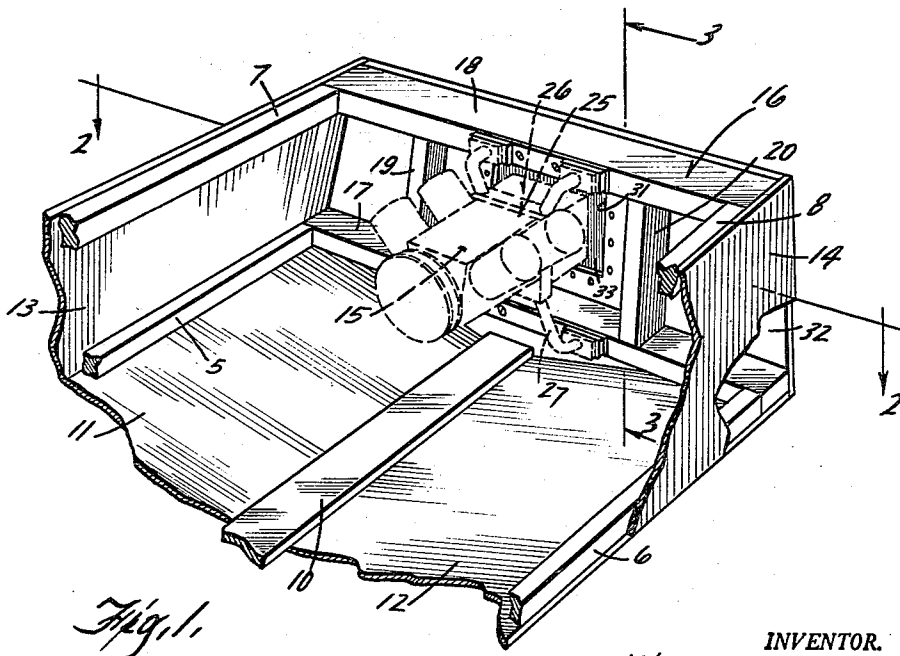
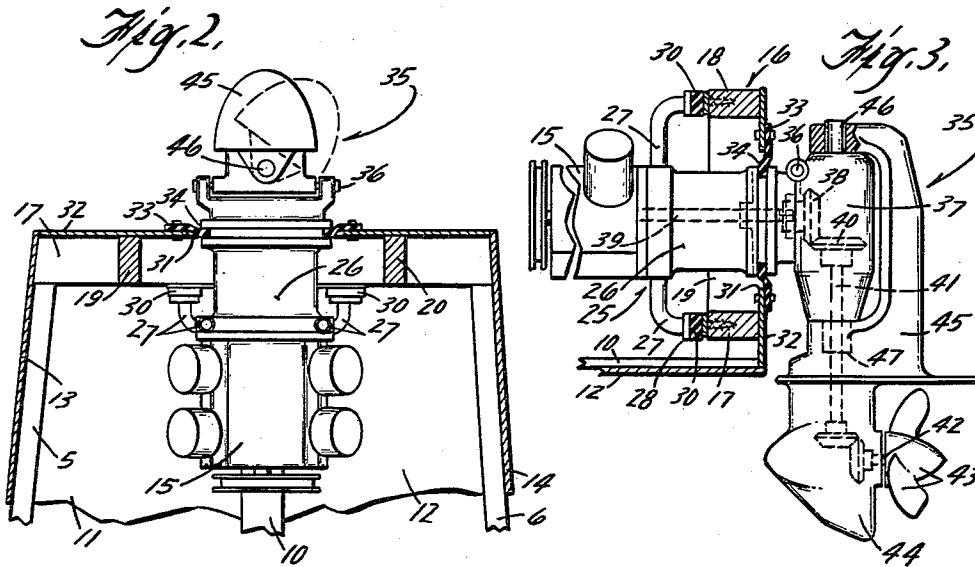


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MOTOR BOAT STRUCTURE PROVIDED WITH A TRANSVERSE
VERTICAL ENGINE BED
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MOTOR BOAT STRUCTURE PROVIDED WITH A TRANSVERSE VERTICAL ENGINE BED

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7 Claims. (Cl. 115—34)

This invention relates to a motor boat structure provided with a transverse vertical engine bed.

Inboard engines have commonly been provided with a bed at the bottom of a boat hull but outboard motors and so-called outboard-inboard devices have commonly been mounted on the transom of the boat hull, or partly on the transom and partly on the bottom. The present invention differs from prior art practice in providing a well-defined engine bed which is upright at the rear of the boat, preferably within the transom, to carry the entire weight and thrust of an inboard engine which drives a propulsion unit aft of the transom through any appropriate seal. Desirably the inboard engine has a mounting provided with elastomeric cushions supporting it and the propulsion unit from the vertical bed. The transom is wholly relieved of any function other than the exclusion of water from the hull. It sustains no part of the weight or the thrust of the engine or propulsion unit in the preferred embodiment. Therefore, if the invention is utilized to the utmost, in accordance with the present disclosure, the transom may be reduced to a very thin sheet of material. In fact, it may be so light as to require support not alone from the sides or gunwale portions of the hull but from the vertical and horizontal members comprising the engine bed.

In the preferred embodiment disclosed, all propulsion thrust is transmitted through the transom seal to the engine mounting and thence to the bed without imposing any part of such thrust on the transom proper.

In the drawings:

FIG. 1 is a fragmentary perspective view of the aft portion of a boat hull embodying the invention.

FIG. 2 is a view taken in transverse horizontal section on the line 2—2 of FIG. 1.

FIG. 3 is a view taken in vertical fore and aft section on the line 3—3 of FIG. 1.

The hull of the boat may be framed as desired. As shown, the frame comprises longitudinal frame members 5 and 6 along the chines and other longitudinal framing members at 7 and 8 along the gunwales. The frame also includes a central keel board at 10 to which bottom planking 11 and 12 of any desired type converges downwardly from the chine framing members 5 and 6. Similarly, the lateral planking 13 and 14 is connected between the chine framing members 5 and 6 and the gunwale framing members 7 and 8.

The frame further includes a vertical bed for the inboard engine 15 provided in the aft portion of the hull. This bed is designated generically by reference character 16. It desirably includes transverse horizontal members 17 and 18 respectively abutting and connected with the chine members and gunwale members. The transverse members 17 and 18 may conveniently be connected by uprights 19 and 20.

The engine mount 25 comprises a central annular portion 26 to which the engine 15 is attached and through which the engine shaft 39 extends. The annular portion 26 has legs 27 connected at a number of points to the bed 16 through feet 28 having bonded thereto elastomeric cushions 30.

The annular portion 26 of engine mount 25 extends through an opening 31 in the transom 32. It will be ob-

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served that the transom 32 performs no function other than to close the hull against the water. It carries no weight whatever. A seal may conveniently be provided between the transom 32 and engine mount 25 by means of a rubber sleeve or member 33 secured to the transom about the opening 31 and secured at 34 to the central annular portion 26 of the engine mount.

The outboard drive generically designated by reference character 35 is mounted aft of the transom on a hinge 36 which connects it with the aft end of the engine mount 25. This hinge permits the outboard drive to tilt bodily with respect to the engine mount. Within the gear case section 37 of the drive is a driving bevel gear 38 detachably connected with the engine shaft 39 and a driven bevel gear 40 connected with an upright drive shaft 41 having the usual driving connection with a propeller shaft 42 for actuating the propeller 43. The propeller shaft and the lower unit 44 in which it is mounted are turnable for steering by means of a yoke 45 having pivotal connection at 46 and 47 with the gear case section 37 of the outboard drive 35. Means for turning the dirigible portions of the device for steering purposes are well-known to the art and hence are not illustrated.

It will be observed that the entire weight of the engine 15 and the engine mount 25 and the drive unit 35 is carried from the vertical bed 16 provided just forward of the transom at the rear end of the boat. Most or all vibration is absorbed in the elastomeric cushions 30. All propulsive thrust of the propeller 43 is transmitted through the outboard drive unit 35 and the engine mount 25 and the cushions 30 to the vertical engine bed, which has thrust engagement with the longitudinal structural members of the boat to avoid imparting any undue stress of any nature to the hull.

If a submerged obstacle such as a shoal is encountered by the lower unit 44 of the drive unit, the drive unit can tilt rearwardly and upwardly on the hinge 36 to clear the submerged obstacle. This will temporarily disengage the drive to the bevel gears 38 and 40 in the power train to the propeller but will do no damage to the inboard-outboard organization or to the hull. In the past, boat hulls have been damaged by excessive thrusts either forwardly or aft upon the transom portion of the hull. In the instant device, the transom is wholly relieved of all stress, either fore or aft and, in addition, may receive support from the same transverse vertical bed upon which the propulsion device is yieldably mounted.

I claim:

1. The combination with a marine propulsion unit, of a boat hull having a rigid frame with an upright transverse bed adjacent the stern of said hull, a transom closing the stern of said hull and provided with an aperture, means mounting said propulsion unit on said bed independently of said transom with a portion of said unit extending through said aperture, and a seal connecting said propulsion unit to said transom to exclude entry of water through said aperture into said boat hull.

2. The device of claim 1 in which said unit has elastomer cushion means supporting it from said bed.

3. The device of claim 1 in which said unit comprises an engine within the hull, an outboard drive behind the transom and an engine mount to which the engine and outboard drive are both connected, said engine mount having means supporting it from said bed.

4. The device of claim 3 in which said last mentioned means includes arms connected with said mount and elastomeric cushions disposed between said arms and said bed for yieldably carrying from said bed the weight of the engine and the thrust of said outboard drive.

5. The device of claim 4 in which the seal comprises a flexible member connected with said engine mount

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throughout the periphery thereof and connected with said transom about the opening through which the propulsion unit extends.

6. The combination with a propulsion unit including an inboard engine and an outboard drive, of a mount to which both said engine and said drive are attached, and a boat hull having a frame and a transom, said frame longitudinal framing members and a transverse vertical bed in connection with such members, said bed including vertically spaced transverse bed members and upright laterally spaced members connected with the transverse members, said mount having projecting arm portions provided with means connecting such arm portions to the bed for the support of the engine and the transmission of thrust through said bed, said transom having an aperture therein through which said propulsion unit extends and said transom

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being connected to said propulsion unit by a non-load carrying flexible member, whereby the stern end of the hull is closed against the entry of water therein.

7. The device of claim 6 in which elastomeric cushions are interposed between the arm portions and the bed whereby to reduce vibration transmission to the hull.

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