Aug. 15, 1961 E. L. TORREY 2,996,035

OUTBOARD BOAT-PROPULSION UNIT

Filed Dec. 3, 1958 2 Sheets-Sheet 1

FIG. 1

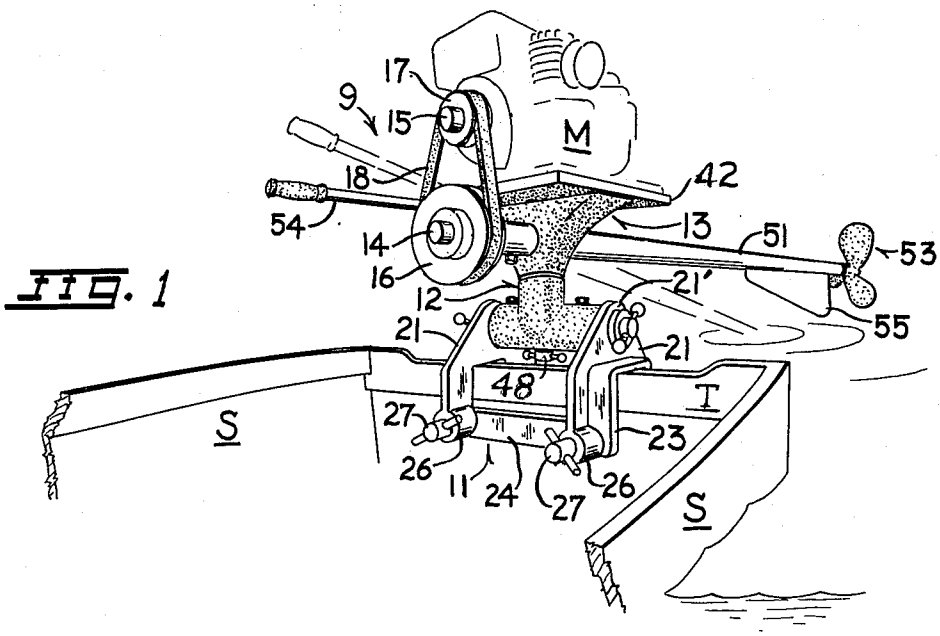

FIG. 2

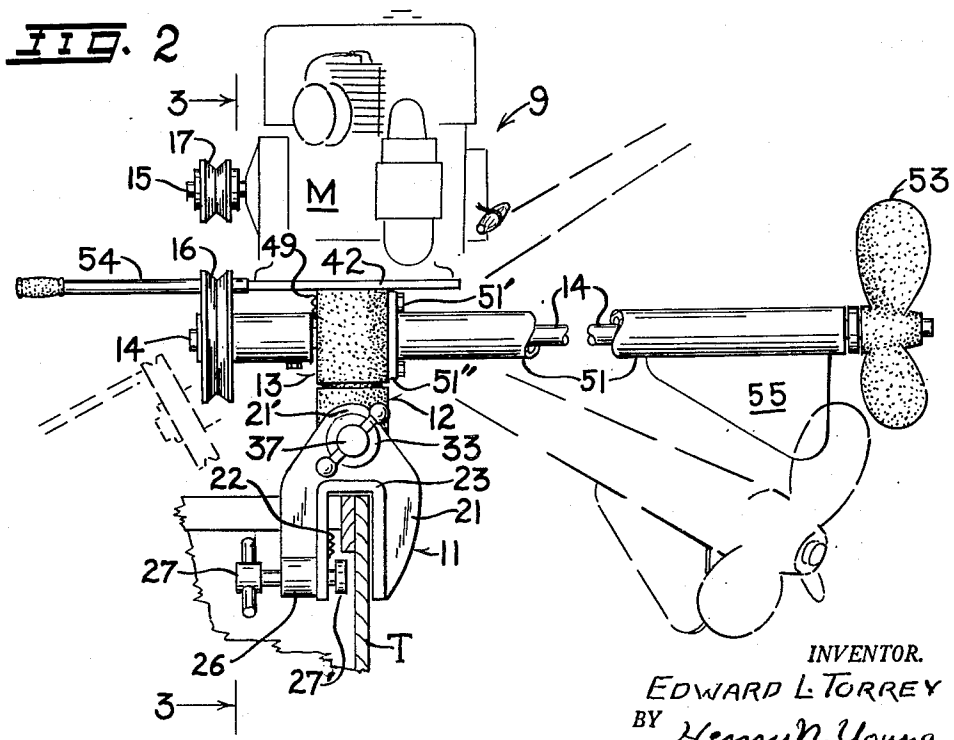

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FIG. 3

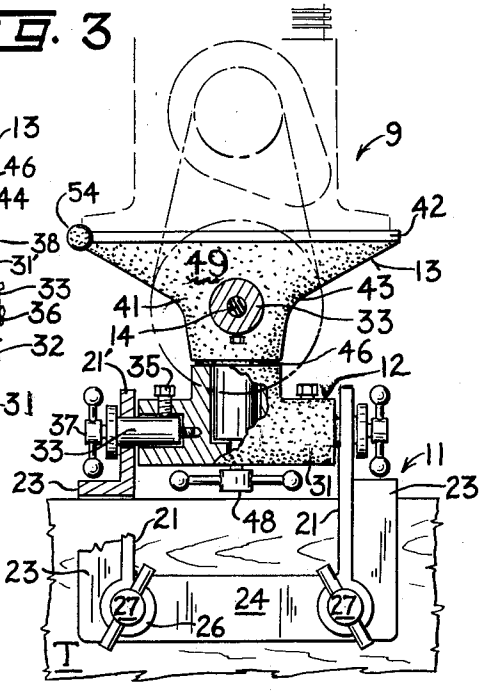


FIG. 4

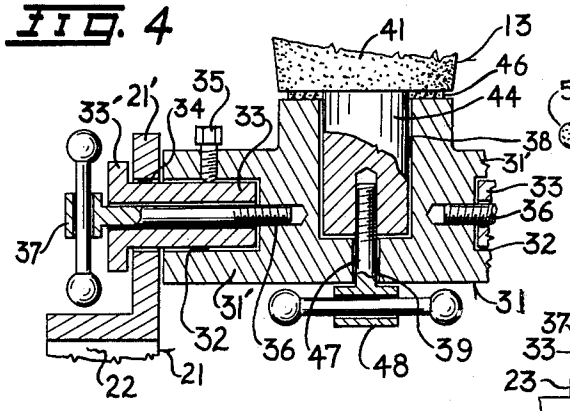
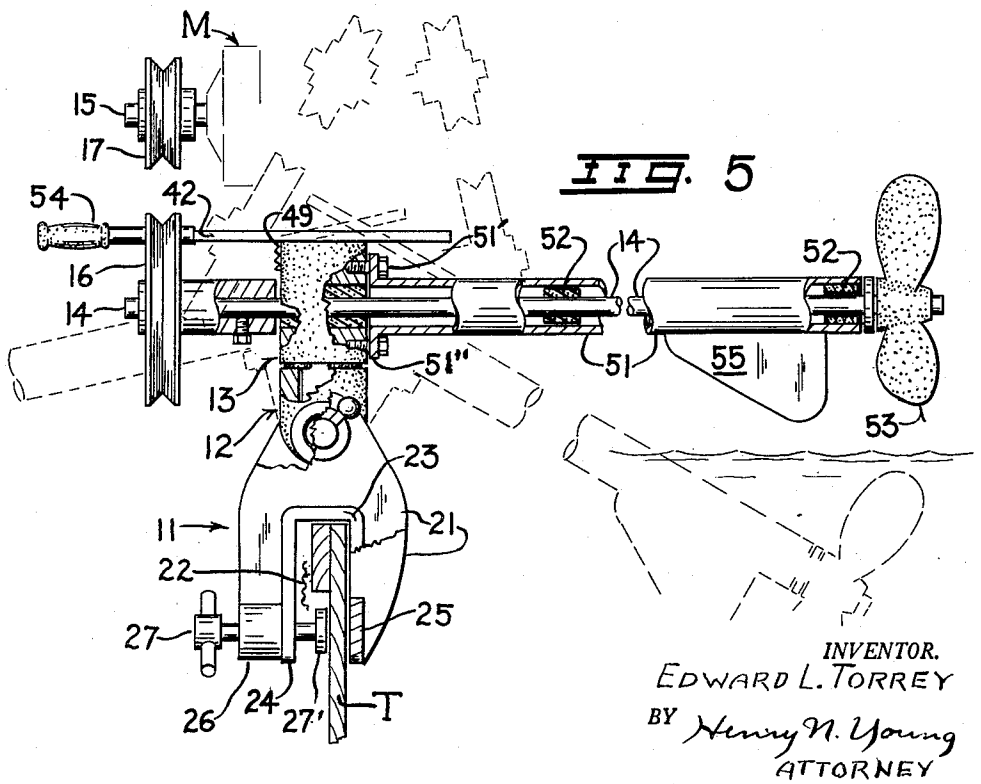


FIG. 5



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OUTBOARD BOAT-PROPULSION UNIT

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4 Claims. (Cl. 115—18)

The invention relates to an outboard propulsion unit for smaller water-borne craft, and the mounting of the unit on a boat.

A general purpose is to provide a particularly simple and effective outboard drive and steering unit arranged for its detachable and adjustable mounting by means of an appropriate bracket on the transom or stern board at the rear of a row boat or lighter, or the like, and particularly for the operation of such boats in shallow or weedy waters.

A more specific object is to provide an improved and relatively simple propulsion unit of the character described having a screw propeller and its operating motor or engine fixedly related in the unit.

Another object is to so mount the propulsion unit that the operating propeller constantly urges a lifting of the stern of the carrying boat while urging a forward propulsion of the boat.

A further object is to so mount a propulsion unit of the character described having a relatively long propeller shaft housing and so carried by the mounting bracket that the propeller may be operatively disposed partly in or fully beneath the surface of the supporting water, or may be raised clear of the water and be swung inboard to provide access to the propeller by an occupant of the boat.

An added object is to provide a unit of the type described wherein the propeller shaft housing fixedly mounts a depending rudder blade for use in guiding the moving boat.

The invention possesses other objects and features of advantage, some of which, with the foregoing, will be set forth or be apparent in the following description of a typical embodiment thereof, and in the accompanying drawings, in which,

FIGURE 1 is a fragmentary perpsective showing of a present outboard motor and propeller unit as mounted on the transom portion of the stern board of a small boat, the propeller being shown as raised out of the boat-supporting water, and the motor being indicated by a generally phantom view thereof.

FIGURE 2 is an enlarged side elevation of the assembly of FIGURE 1.

FIGURE 3 is a partly sectional elevation taken from the plane of the line 3—3 in FIGURE 2.

FIGURE 4 is an enlarged fragmentary section of a portion of the showing of FIGURE 3.

FIGURE 5 is an enlarged and partly sectional side elevation of the mounted unit, and indicates in dash lines a working disposal of the unit.

As particularly illustrated, an outboard boat propulsion unit 9 embodying my invention is shown as mounted in a usual position for such units on the upper transom portion T of the stern board of a small boat of the row boat type as providing for a power propulsion of such a water-borne vessel. A present unit 9 generally comprises a clamp 11 providing a base for mounting the unit on a boat transom T connecting the rear ends of the boat sides S, a bracket section 12 comprising a member extending from the clamp 11 in hinged relation thereto for adjustment about an axis which is parallel to the top line of the mounting transom, and a bracket section 13 comprising a member which is swiveled to the section 12 for rotation about an axis which perpendicularly intersects the hinging axis of the section 12 and directly and fixedly carries a

suitable drive motor M and a propeller shaft 14 which are suitably connected for a driving of the shaft 14 from the power unit shaft 15. In the present assembly, the shafts 14 and 15 respectively carry mutually coplanar pulleys 16 and 17 connected by a belt 18 for the driving of the propeller shaft from the shaft of the bracket-carried operating motor M, the precise power-and-shaft connection being generally immaterial to the present invention.

The present mounting clamp 11 is of a double C-clamp form having transversely spaced and mutually parallel complementary sides comprising plates 21 providing transom-receiving rectangular notches 22 laterally bounded by stiffening ribs 23 extending oppositely and transversely outwardly from the side plates 21 which are integrally connected by plates 24 and 25 at opposite sides of the notches 22 in the planes of the portions of the ribs 23 at the opposite sides of the notches. The terminal end portions connected by the plate 24 are suitably enlarged to provide portions 26 which threadedly receive clamp screws 27 therethrough having terminal pads 27' for engagement with a transom T extending into the notches 22 to clamp the transom against the plate 25. Preferably, but not essentially, the clamp screws 27 are disposed at the inboard side of an engaged transom for facilitating a fixed mounting, or a dismounting, of a present unit 9 on a boat.

It will now be noted that the lower bracket member 12 comprises a body 31 of generally cylindrical form which is mounted between the opposed ear-like top portions 21' of the clamp side plates 21. Sockets 32 extend coaxially into the ends of the body 31 and fixedly carry tubular stub shafts 33 extending coaxially from them through bearing openings 34 provided through the opposed portions 21' of the clamp plates 21; as shown, setscrews 35 fix the shafts 33 in the sockets 32. The bores of the shafts freely receive tap-bolts 36 having heads 37 adapted for their manual turning and having their shanks threadedly engaged in the body 31 in the axial line of the sockets 32 in such relation to the shafts 33 that the bolt heads 37 are forcibly engageable with the outer shaft ends for releasably locking the rotatively adjusted shafts against rotation in the bearings 34 for securing the section 12 in angular relation to the clamp. Centrally thereof, the body of the bracket member 12 is provided with a radial cylindrical socket 38 extending from within the body and through an annular boss extension 31' of the body, and an opening 39 extends from the bottom of the socket axially thereof to the opposite side of the body for use in the manner hereinafter brought out.

It will now be noted that the bracket member 13 comprises a unitary body 41 providiing a motor-mounting platform portion 42 connected by an intermediate body portion 43 with an integral stub-shaft or stem portion 44 which has its axis perpendicular to the platform 42, and is arranged for its normally retained and rotatable engagement in the socket 38 of the bracket section 12. A flat bearing shoulder is provided by the body portion 43 at the base of the shaft 44, and a suitable anti-friction bearing 46 is interposed between said shoulder and the opposed end of the boss extension 31' of the bracket section 12, whereby the bracket section 13 is normally supported by the section 12 in swiveled relation thereto. A tap-screw 47, preferably having its head 48 adapted for its manual turning, extends through the opening 39 in the bracket member 12 and is threadedly engaged in the free end of the stub shaft 44 axially thereof, said head of the installed bolt being cooperative with the opposed side of the member 12 to prevent a dismounting of the member 13 with respect to the member 12.

It will now be noted that the intermediate portion 43 of the present bracket member 13 is peripherally ellip-

tical at the end thereof which is transversely coterminus with the platform portion **42** of the member, and tapers from said end to a circular periphery at the bearing shoulder **45**; in the present structure, the end of the portion **43** at the bearing shoulder **45** is circular and has the same diameter as that of the opposed end face of the extension **31'** of the member **12**. Also, the minor axis of the ellipse at the platform end of the portion has the same measure as the outer diameter of the bearing shoulder **45**, whereby the member has side faces **49** at opposite sides of a transverse plane to the portion **43** and including the major axis of the said ellipse and the axis of the stub shaft **44**, said sides having flat intermediate portions thereof extending from both sides of a plane including said axis and perpendicular to the first plane. The member **12** may comprise a fabricated assembly of its parts **42** and **43** and **44**, or may have the indicated one-piece structure.

The propeller shaft **14** extends transversely through the intermediate portion **43** of the bracket section **13** in journalled relation thereto, and from a tubular shaft housing **51** which is suitably fixed to a flat normally rear side **49** of the bracket section **13** in perpendicular relation to the engaged side, as by tap bolts **51'** engaged through a terminal flange **51''** of the housing. Preferably, and as shown, the axis of the shaft **14** intersects the axis of pivoting of the bracket section **13**, and the shaft is carried in suitable bearings **52** within and along the housing **51** and directly carries a suitable screw propeller **53** at its extending end for its swinging movement with the housing **51** which is of such a length that the propeller may be adjustably swung in upright planes about the axis of the stub shafts **44** which support the bracket assembly **12—13** from the clamp **11**, the shaft preferably being water-sealed where its propeller-mounting portion emerges from the housing. The shaft portion which extends through the bracket section **13** directly and suitably mounts the pulley **16** in fixed relation to it and for its adjusted disposal along said shaft portion in coplanar relation with the pulley **17** on the motor shaft **15**.

It will now be particularly noted that the outboard portion of the propeller shaft **14** is relatively long whereby the axis of its directly-carried propeller **14** is arranged to be substantially horizontal under boat propulsion conditions. The drawings disclose the mounted assembly as disposing the relatively long shaft in an out-of-water horizontal position, and that the motor-mounting platform **42** is provided with a control arm extension **54** for manual or other manipulation for rotating the unitary assembly of a motor and propeller shaft about the swivel axis of the upper bracket section **41** and/or adjusting said assembly in an upright plane about the mounting axis for the bracket assembly. With such an arrangement, the propeller may be lowered into the water behind the boat in an upright plane parallel to the longitudinal line of the boat for providing a straight-ahead driving of the boat, or be adjustably disposed in an upright plane which is angularly related to said first plane for effecting a corresponding steering movement of the boat through the action of a rudder blade **55** which depends fixedly from the shaft housing adjacent the rear end thereof.

Recalling that a swinging adjustment of the bracket assembly **12—13** in an upright plane requires a release of the bolts **36** of the clamp-mounting assembly **11**, it will be understood that the propeller **53** may be disposed and fixed at different depths below the surface of the supporting water while the propeller and rudder are operative therein, whereby the propeller shaft then slopes downwardly from its inboard end. Normally, and particularly when the boat is being operated in relatively shallow waters, the propeller would be disposed substantially at the water surface, as is particularly indicated in dash lines in FIGURES 1 and 5; a steering disposal of the propeller and rudder is indicated in dash lines in FIGURE 2. Also, with the present arrangement, the propeller may be disposed out of the water for holding it temporarily clear of surface obstructions and/or may then be rotated to clear it of weeds and other entangling matter. Yet again, since the shaft of the water-engaging propeller slopes upwardly from the propeller, the propeller action, particularly at high speeds, tends to lift the rear end of the boat to provide clearance for the action of the propeller behind the boat, this constituting a feature which is particularly valuable in shallow waters. On the other hand, the raised propeller may be swung around the swivel axis between the bracket sections **12** and **13** to dispose the propeller in an inboard position for its cleaning or repair or replacement.

From the foregoing description taken in connection with the accompanying drawings, the advantages of the present Outboard Boat-Propulsion Unit will be readily understood by those skilled in the art to which the invention appertains. While I have shown and described a structure and operative arrangement which I now consider to comprise a preferred embodiment of my invention, I desire to have it understood that the showings are primarily illustrative, and that such changes and developments may be made, when desired, as fall within the scope of the following claims.

I claim:

1. In a bracket for mounting an outboard propulsion unit on a support member of a boat, a bracket base element adapted for its fixed mounting on said boat member, an intermediate bracket element hingedly mounted on said bracket base element for its swinging adjustment solely about a horizontal axis extending parallel to the mounting boat member, and an upper bracket element fixedly and directly mounting the propulsion unit and pivotally mounted on the intermediate bracket element in solely swiveled relation thereto for its swinging about an axis perpendicularly intersecting said axis of swinging adjustment of the lower bracket element.

2. In a bracket for operatively mounting an outboard boat-propulsion unit comprising a motor having a drive shaft and a unitarily associated driven propeller shaft, a bracket base element providing a hinge pin and adapted for its fixed mounting on a boat member with said hinge pin horizontal, an intermediate bracket element mounted on said hinge pin of the base element for its swinging adjustment about the base-mounted pin, an upper bracket element mounted on the intermediate bracket element in solely swiveled relation thereto for its steering swinging about an axis perpendicular to said axis of swinging adjustment of the intermediate bracket element, means for fixedly and directly mounting the motor on the upper bracket element, means for rotatively mounting the propeller shaft on the upper bracket element in fixed radially extending relation to the axis of swinging thereof and in laterally offset and fixed parallel relation to the shaft of the mounted motor for a driving connection of corresponding ends ofsaid motor and propeller shafts.

3. In an outboard boat-propulsion unit comprising a motor having a drive shaft and a unitary associated driven propeller shaft having a propeller at an end thereof, a bracket base element providing a hinge pin and adapted for its fixed mounting on a boat member with said hinge pin horizontal, an intermediate bracket element mounted on said hinge pin of the base element for its swinging adjustment about the base-mounted pin, an upper bracket element mounted on the intermediate bracket element in solely swiveled relation thereto for its steering swinging about an axis perpendicular to said axis of swinging adjustment of the intermediate bracket element, means of the upper bracket element for fixedly mounting the motor thereon, a shaft housing provided by the upper bracket element extending radially therefrom and journalling the propeller shaft in fixed laterally spaced parallel relation to the axis of the shaft of the mounted said motor with said shaft having an end portion extending through and from the element to provide for the driving connection of its extending inner end with the motor shaft.

4. In an outboard boat-propulsion unit comprising a motor having a drive shaft and a unitarily associated propeller shaft, a bracket base element providing a hinge pin and adapted for its fixed mounting on a boat member with said hinge pin horizontal, an intermediate bracket element mounted on said hinge pin of the base element for its swinging adjustment about the base-mounted pin, an upper bracket element mounted on the intermediate bracket element in solely swiveled relation thereto for its steering swinging about an axis perpendicular to said axis of swinging adjustment of the intermediate bracket element, a tubular shaft housing provided by said upper bracket element and extending radially from the swivel axis thereof and journaling the propeller shaft in laterally offset and parallel relation to the motor shaft, and means connecting corresponding ends of said motor and propeller shafts for a rotation of the propeller shaft from the operating motor shaft.

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