Oct. 27, 1953 E. C. KIEKHAEFER 2,656,813

BRACKET MOUNTING FOR OUTBOARD MOTORS

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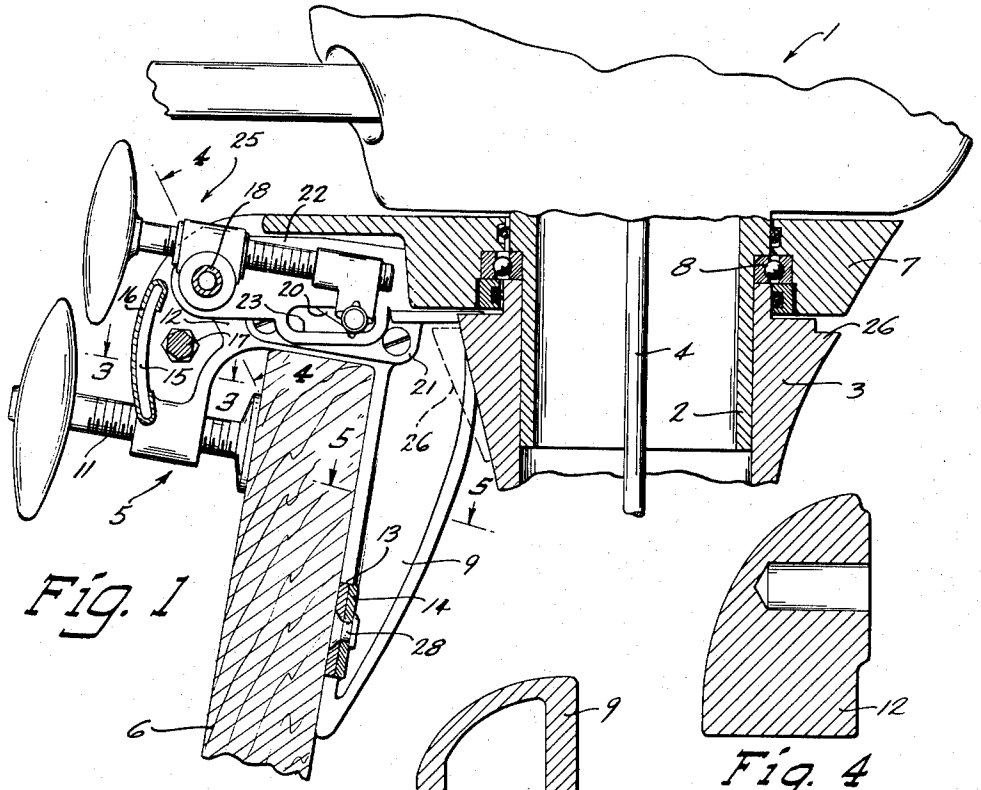


Fig. 1

Fig. 4

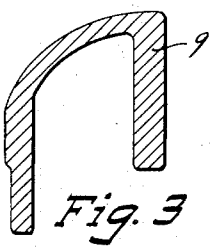


Fig. 3

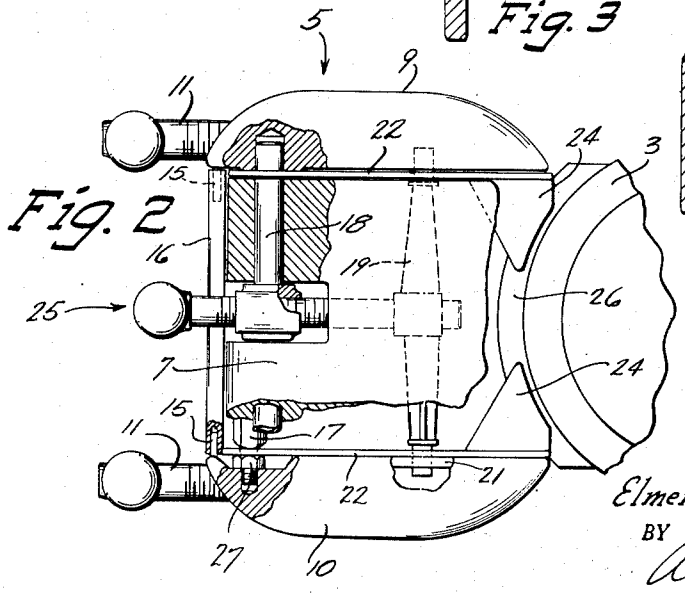


Fig. 2

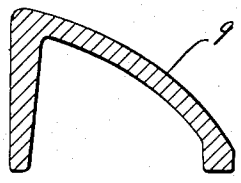


Fig. 5

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Fig. 6

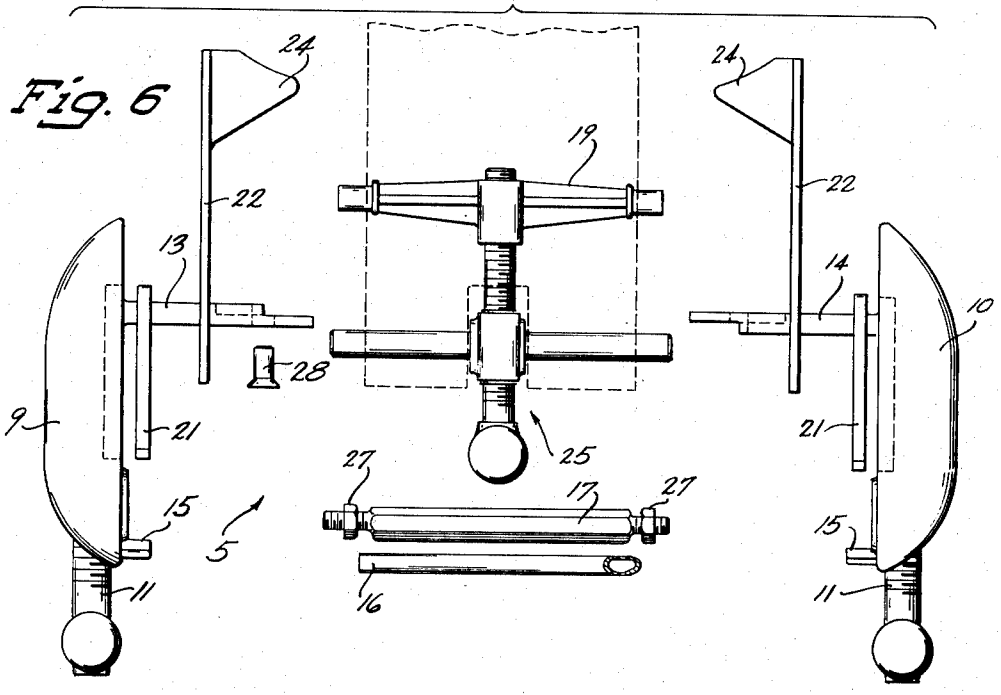


Fig. 7

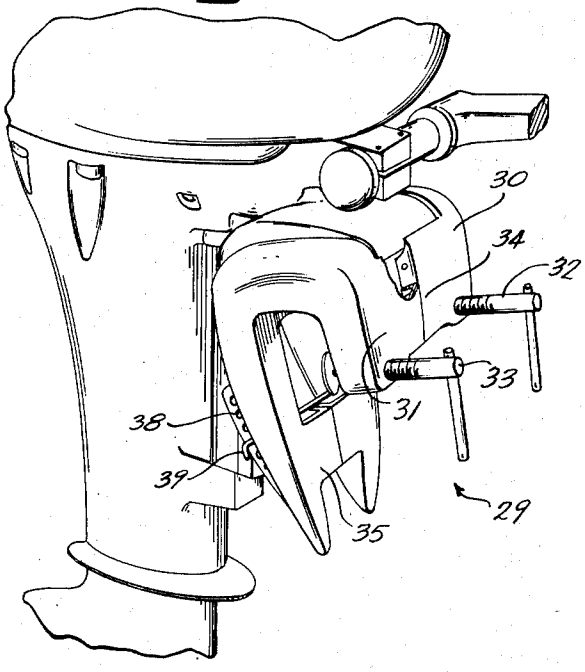
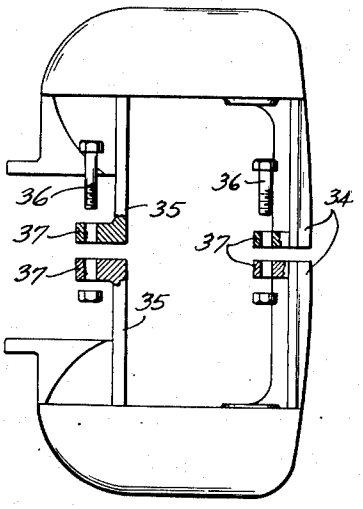


Fig. 8



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Patented Oct. 27, 1953

2,656,813

UNITED STATES PATENT OFFICE

2,656,813

BRACKET MOUNTING FOR OUTBOARD MOTORS

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Application August 13, 1948, Serial No. 43,982

2 Claims. (Cl. 115—18)

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This invention relates to brackets for securing outboard motors to the stern or transoms of boats for use therewith and constitutes a continuation in part of the application of the present inventor filed September 5, 1947, Serial No. 772,346, now Patent No. 2,549,481.

A principal object of the invention is to provide a more easily assembled clamp bracket having means for adjusting the tilt of the motor with respect to the transom of the boat.

Another object is to provide for the positive locking of the motor against tilting when turned in the reverse direction.

Another object is to provide for the complete adjustment of the motor at the front of the bracket securing the motor to the transom of the boat.

Another object of the invention is to provide a more easily assembled and fabricated clamp bracket of improved design and neat appearance.

Another object is to provide for greater strength and substantially less weight in such brackets to improve the general utility of the outboard motor.

Another object is to reduce substantially the possibility of breaking or splitting the clamp bracket by securing the bracket to a boat unnecessarily tight as with a wrench.

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

In the drawings:

Figure 1 is a side elevation of a part of an outboard motor and bracket therefor with portions broken away to show the construction thereof and the tilt control mechanism.

Fig. 2 is a plan view of the bracket with certain parts broken away showing various details of construction thereof and showing a part of the motor in fully reversed position;

Fig. 3 is a line section of the bracket taken on line 3—3 of Fig. 1;

Fig. 4 is a line section of the bracket taken on line 4—4 of Fig. 1;

Fig. 5 is a line section of the bracket taken on line 5—5 of Fig. 1;

Fig. 6 is a plan view of the parts comprising the bracket shown in Fig. 2 prior to assembly thereof;

Fig. 7 is a perspective illustration of an alternate construction of the bracket with a portion thereof broken away and sectioned; and

Fig. 8 is a plan view of the parts of the bracket illustrated in Fig. 7 prior to assembly thereof.

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The outboard motor shown in part in Figs. 1 to 6 of the drawings comprises the engine unit 1 having a downwardly extending sleeve 2 preferably formed integrally with the crankcase of the engine, not shown, and fitting within the upper end of the housing 3 for the drive shaft 4, and the bracket 5 by which the motor is removably and conveniently secured to the transom 6 of the boat.

The swivel bracket 7 pivotally connects the motor to bracket 5, as will be described, to allow the tilting of the motor around a transverse horizontal axis as when the underwater part of the motor strikes a submerged object and pivotally supports the motor by the bearing 8 to provide for turning of the motor on a vertical axis to steer the boat.

Bracket 5 is adapted to fit over the top edge of transom 6 and comprises the two complementary right and left hand clamps 9 and 10 carrying the screws 11 forwardly thereof by which the bracket may be tightly secured to the transom.

Clamps 9 and 10 are U-shaped to fit over transom 6 and of U section throughout their length. The open side of the U section of each clamp faces the opposite clamp and is thereby concealed by the other parts of the bracket, as will be described. Clamps 9 and 10 are of cast construction and ribbed as at 12 for lightness and strength. The outer dimensions of the clamps are curved for neat appearance and ease in handling. The forward end of each clamp extends downwardly over the front side of transom 6 and carries one of the screws 11 which when tightened causes the rear end of each clamp to be engaged tightly against the back side of transom 6 to secure the motor.

The extending arms 13 and 14 formed integrally with the lower rear portions of clamps 9 and 10 have complementary ends which overlap and fit together to join the same.

The curved bosses 15 on oppositely facing sides of clamps 9 and 10 and forwardly thereof carry the metal connecting channel 16 extending between and spacing clamps 9 and 10. The tie stud 17 concealed behind channel 16 joins the forward parts of clamps 9 and 10 with channel member 16 secured tightly therebetween. The bearing sleeve 18 extending through the forward end of bracket 7 above tie stud 17 extends into holes in oppositely facing sides of clamps 9 and 10 to carry bracket 7 therebetween and provide for the tilting of the motor relative to the boat.

The tilt adjustment of the motor and bearing support provided by the bracket illustrated in Figs. 1, 2 and 6 of the drawings is similar to that disclosed and claimed in the copending application of the present inventor filed September 5, 1947, Serial No. 772,346, for Reversible Outboard Motor, now Patent No. 2,549,481, granted April 17, 1951.

The tilt control comprises the movable cross-bar 19 disposed beneath bracket 7 and riding at either end in the parallel slots 20 of the fixed bearing plates 21 recessed in the inwardly facing sides of clamps 9 and 10, and the movable bearing plates 22 interposed between clamps 9 and 10 and swivel bracket 7. Plates 22 are pivotally carried at their forward end by bearing sleeve 18 and are provided with horizontal slots 23 through which cross-bar 19 extends at either end into slots 20 of the bearing plates 21. The lugs 24 at the rear end of plates 22 extend inwardly and beneath swivel bracket 7 to support the latter.

The screw adjustment 25 carried by sleeve 18 within a recess in the front of bracket 7 provides for the selective movement of cross-bar 19 forwardly or rearwardly with respect to the bracket for tilt adjustment of the motor. Slots 20 and 23 are angularly disposed so that movement of cross-bar 19 forwardly or rearwardly correspondingly raises or lowers bearing plates 22 and swivel bracket 7 supported by lugs 24.

In tilting of the motor as when the same strikes an underwater object, the motor and swivel bracket 7 move upwardly, rotating on bearing sleeve 18 while the tilt adjustment remains in place with respect to bracket 5. When the motor returns to normal position the swivel bracket moves downwardly to rest on lugs 24 in the adjusted position.

Tilting of the motor when the motor is turned 180° for moving the boat in the reverse direction is prevented by the flange 26 which engages lugs 24 and prevents pivotal movement of the motor on sleeve 18. Flange 26 is preferably formed integrally with the drive shaft housing 3 at the rear thereof just below the swivel bracket 7 and extends circumferentially of housing 3 with respect to the vertical turning axis of the motor in bearing 8 so that engagement of flange 26 beneath lugs 24, as shown in dotted lines in Fig. 1, occurs only when the motor is turned more than 90° in either direction.

Flange 26 on housing 3 prevents the motor from being reversed when the motor is not in its proper position. If bracket 7 is not fully seated on lugs 24, flange 26 will not clear the lugs and allow the motor to be turned further into reverse thus preventing possible loss of the motor or injury to the operator as when the motor, tilting upwardly under its own power, is not locked in reverse.

Assembly of the complete bracket is accomplished by first assembling the screw adjustment 25 and swivel bracket 7 on bearing sleeve 18 with the cross-bar 19 beneath bracket 7, then placing the movable bearing plates 22 on sleeve bearing 18 with the ends of cross-bar 19 extending through slots 23 of plates 22 and the lugs 24 extending inwardly beneath bracket 7, and then assembling clamps 9 and 10 with plates 21 on sleeve 18 with cross-bar 19 riding in slots 20 of plates 21 and with channel 16 carried on bosses 15 of the clamps.

The tie stud 17 which secures the assembly together is preferably hexagonal for its entire length to facilitate application of a wrench

thereto for easily drawing clamps 9 and 10 tight. The lock nuts 27 on stud 17 prevent the stud from becoming loose. The rivet 28 is applied to secure the two complementary joined ends of extending arms 13 and 14 together and complete the bracket assembly.

In the alternate embodiment of the invention shown in Figs. 7 and 8 the bracket 29 comprises a right and left clamp 30 and 31 which are similar in construction to members 9 and 10 described above and which carry the screw adjustments 32 and 33. Clamps 30 and 31 are joined by the forward and rear cross-members 34 and 35, respectively, which are cast integrally with clamps 30 and 31. Members 34 and 35 are each divided along the longitudinal vertical median plane of the bracket and joined by the bolts 36 extending through the respective flanges 37 formed integrally with each member. Flanges 37 extend rearwardly of the clamp and along the adjoining edges of members 34 and 35 for concealment.

The tilt adjustment shown in Fig. 7 comprises a series of holes 38 along the lower rear side of each clamp 30 and 31 in a line having an angular relation to a transverse horizontal pin similar to the bearing pin 18 securing swivel bracket 7. The pin 39 is inserted in a pair of holes 38 and supports the swivel bracket 7 which rides forwardly against the pin. By placing pin 39 in the selected pair of holes the bracket 7 may be adjusted and supported in the desired angular relation to the transom of the boat.

The bracket shown in Figs. 7 and 8 may be employed with the tilt control previously described and with motors provided with full steering for reverse. Assembly of bracket 29 is similar to that of bracket 5 and is accomplished by bringing clamps 30 and 31 together with swivel bracket 7 properly disposed therebetween and tightening bolts 36.

The construction of the brackets described provides the greatest strength where the bracket is most subject to breaking when too tightly secured to a boat. The neat appearing opposite outer sides of the bracket comprising the center portions of the U section of each clamp member and extending around the edge of the transom are not weakened by holes for the swivel pin or bolts securing the members together. The brackets are rigid, light in weight and inexpensive to manufacture.

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

I claim:

1. An outboard motor comprising a power unit, a housing associated therewith, a support bracket carrying the power unit and housing, a second bracket adapted to be secured to a transom of a boat and having a swivel connection with the support bracket above and forwardly of the transom for tilting of the motor, spaced inclined ways in the second bracket rearwardly of said swivel connection and above the transom of the boat, a cross bar immediately beneath said support bracket spanning the space between the ways and resting on each way, the support bracket having contact with the yoke, means for moving the yoke up and down the ways whereby the support bracket is raised or lowered relative to the second bracket.

2. In an outboard motor, a clamp bracket for securing the motor to the transom of a boat and comprising spaced clamp members, a swivel

bracket supporting the motor for steering adjustment on a vertical axis and pivotally supported by said clamp bracket between said members for tilting and other adjustment of the motor on a transverse horizontal axis, spaced inclined ways formed in each of said bracket members rearwardly of said pivotal connection and above the transom of the boat, a cross bar carried at each end by a corresponding bracket member within said ways, a threaded draw bar swivelly supported by said bearing sleeve and connecting the same and said cross bar to move the latter forwardly and rearwardly in said ways, said swivel bracket being supported by said cross bar in the normal operation of the motor and adapted for relative adjustment on said bearing sleeve respecting the transom, a separate member pivotally supported by said bearing sleeve on each side of said swivel bracket and between the latter and the corresponding clamp and having slots

through which said cross bar extends into the ways whereby said members are supported and moved to correspond with the adjustment of said swivel bracket, each of said members having lugs extending inwardly beneath said swivel bracket, and a flange carried by said motor and adapted to engage the underside of said lugs to prevent tilting of the motor in a reversed direction.

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