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TROLLING ATTACHMENT FOR OUTBOARD MOTORS

Filed April 6, 1960

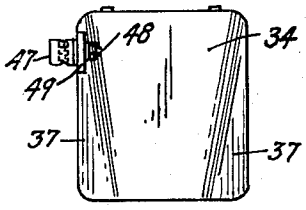


Fig 9

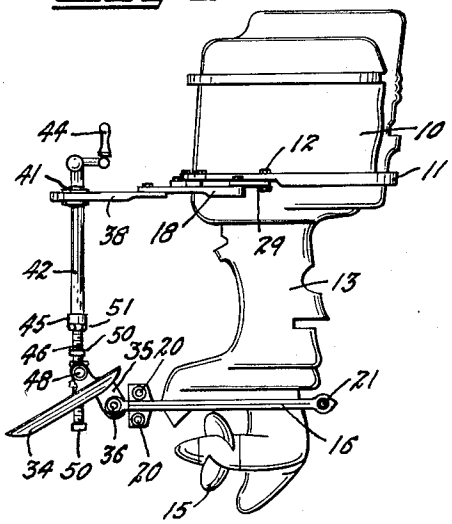


Fig 1

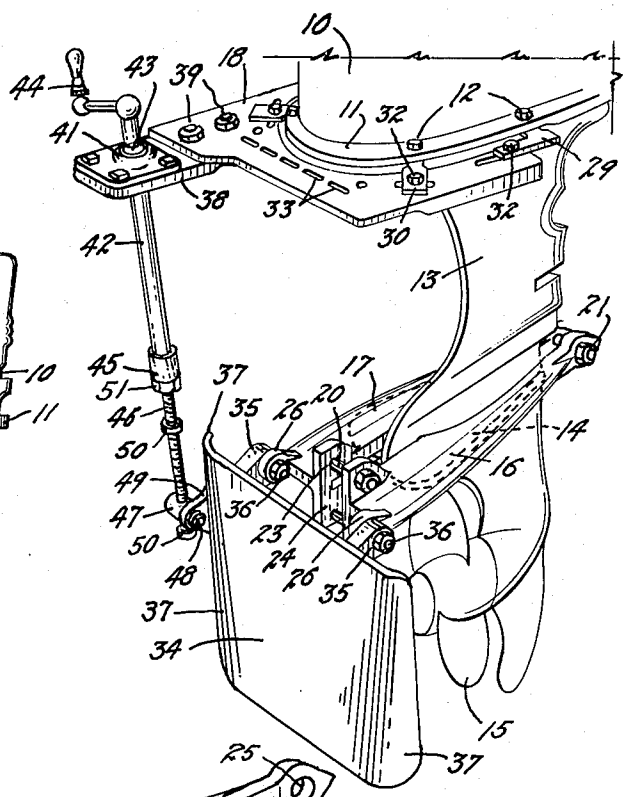


Fig 2

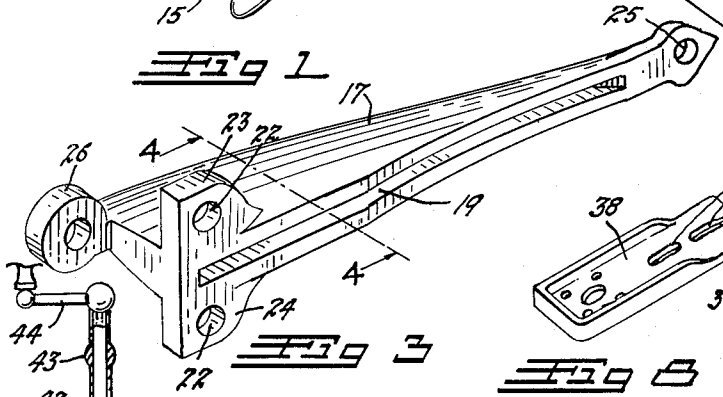


Fig 3

Fig 8

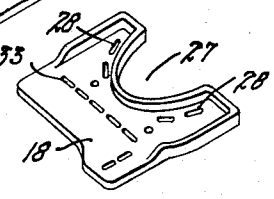


Fig 5

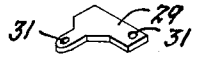


Fig 6

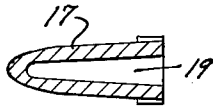


Fig 4

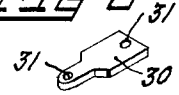


Fig 7

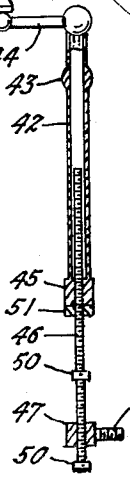


Fig 10

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TROLLING ATTACHMENT FOR OUTBOARD MOTORS

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3 Claims. (Cl. 114—145)

This invention relates to an attachment for outboard motors for controlling the speed of a boat independently of the speed of the motor.

The principal object of the invention is to provide a highly efficient attachment which can be quickly and easily attached to an outboard motor to provide any desired boat speed for trolling a fishing line or for any other desired purpose.

Another object of the present invention is to so construct the improved trolling attachment that it can be quickly and easily attached to any of the popular makes of outboard motors without effecting the operation or structure of the outboard device in any way.

A further object is to provide a trolling plate and a trolling plate mounting for outboard motors which will enable the plate to be minutely and accurately adjusted to obtain and maintain any desired trolling action independently of the motor speed.

Other objects and advantages reside in the detail construction of the invention, which is designed for simplicity, economy, and efficiency. These will become more apparent from the following description.

In the following detailed description of the invention, reference is had to the accompanying drawing which forms a part hereof. Like numerals refer to like parts in all views of the drawing and throughout the description.

In the drawing:

FIG. 1 is a side view of a conventional outboard motor showing the improved trolling attachment applied thereto;

FIG. 2 is an enlarged, fragmentary perspective view of the outboard motor with the trolling attachment applied thereto;

FIG. 3 is a still further enlarged detail perspective view of a clamping member used in attaching the attachment to the propeller standard of a conventional motor;

FIG. 4 is a cross sectional view of the clamping member, taken on the line 4—4, FIG. 3;

FIG. 5 is a reduced scale detail perspective view of the bottom of a motor attachment plate employed for mounting the attachment on the outboard motor;

FIGS. 6 and 7 are similar perspective views of adaptors for use with the plate of FIG. 5 as will be later described;

FIG. 8 is a similar detail perspective view of the bottom of a control bracket used in the attachment;

FIG. 9 is a detail rear face view of a trolling plate employed in the invention; and

FIG. 10 is a detail side view, partially in section illustrating an extensible adjusting shaft device employed for adjusting the angle of the trolling plate of FIG. 9.

In the drawing, elements of a conventional outboard motor are designated by numerals as follows: motor housing **10**, motor housing flange **11**, motor housing flange bolts **12**, propeller shaft housing **13**, anti-cavitation fins **14** on propeller shaft housing, and propeller **15**.

The improved trolling plate attachment is designed for application to the motor housing flange **11** and the anti-cavitation fins **14** of the propeller shaft housing **13** through the medium of a pair of propeller shaft housing clamps **16** and **17**, and a mounting plate **18**.

The propeller shaft housing clamps are similar but of opposite hand, that is, the clamp **16** is a right hand clamp designed to fit against the right side of the propeller shaft

housing **14** and the clamp **17** is a left hand clamp designed to fit against the left side of the propeller housing. Each clamp is formed with a hollow interior cavity **19**. The cavity **19** is shaped to receive and fit about one of the horizontal anti-cavitation fins **14** with which all conventional outboard motors are provided. The two clamps **16** and **17** are drawn together and tightly clamped against the sides of the propeller shaft housing **13** and over the fins **14** by means of rear clamp bolts **20**, positioned to the rear of the propeller shaft housing **14**, and a forward clamp bolt **21** positioned forwardly of the housing **14**. The rear clamp bolts **20** pass through suitable bolt holes **22** extending through upper and lower bolt pads **23** and **24**, respectively, formed on the rear extremity of the inner edge of each clamp. The forward clamp bolt **21** extends through a forward bolt hole **25** extending through the forward extremity of each clamp.

The mounting plate **18** is provided with a notch **27** in its forward edge to enable it to receive and fit about the motor housing **10** for attachment to the motor housing flange **11**. The method of attachment depends upon the particular make and type of outboard motor. For instance, on certain motors, the mounting plate can be rested on the motor housing flange and secured in place by passing the conventional flange bolts **12** through elongated bolt holes **28** in the mounting plate. On other types of motors, the notch **27** can be placed around the flange **11** and secured to the flange bolts **12** by means of adaptors such as shown at **29** in FIG. 6 or **30** in FIG. 7. The adaptors are provided with suitable bolt holes **31** for receiving the bolts **12** and other suitable attachment bolts **32** extending through convenient bolt slots **33** in the mounting plate. Thus, a substantially universal mounting is provided for any type of motor.

The clamps **16** and **17** conform in shape to the conventional shape of the fins **14**, that is, they are transversally wider at their rear extremities than at their forward extremities and each is provided with a rearwardly extending pivot ear **26** at the outer corner of its widened rear extremity.

A trolling plate **34** is suspended from the rear extremity of the housing clamps **16** and **17**. The trolling plate **34** is provided with forwardly extending pivot ears **35** adjacent its upper edge which fit against the pivot ears **26** and are pivotally secured thereto by means of pivot bolts **36**. The trolling plate **34** is generally flat with forwardly turned vertical side edges **37**.

A bracket plate **38**, a bottom view of which is shown in FIG. 8, is bolted beneath the mounting plate **18** by means of suitable mounting bolts **39** extending through elongated bolt holes **40** in the bracket plate **38**. The bracket plate extends rearwardly from one side of the mounting plate and supports a ball bearing plate **41** through which an upright tubular adjusting shaft **42** extends. A spherical enlargement or bearing ball **43** is formed on the tubular adjusting shaft which is clamped in place by the bearing plate **41** to swingably support the adjusting shaft **42**.

The adjusting shaft **42** terminates at its top in a hand crank **44** and at its bottom in an enlarged, internally-threaded nut portion **45**. A jack screw **46** is threaded through the nut portion **45** and into the hollow interior of the tubular adjusting shaft **42**. The jack screw **46** can be locked at any desired degree of extension from the tubular adjusting shaft be means of a jam nut **51**. The lower extremity of the jack screw **46** is threaded through a head **47** on a pivot pin **48** which is rotatably mounted in a pivot ear **49** on the trolling plate **34**.

Thus, it can be seen that when the jack screw is locked against rotation in the tubular adjusting shaft by means of the jam nut **51**, clockwise rotation of the hand crank **44** causes the internally threaded head **47** to move up-

wardly so as to swing the trolling plate rearwardly and upwardly from the vertical position of FIG. 2 to any desired intermediate position, such as shown in FIG. 1, or to a substantially horizontal, rearwardly extending position. Counter clockwise rotation will, of course, reverse the direction of movement so as to swing the trolling plate downwardly. Thus, the propelling reaction of the propeller stream upon the boat can be minutely and accurately controlled to obtain any desided propelling effect from a full stop, with the trolling plate in the vertical position of FIG. 2, to full speed ahead with the trolling plate in the horizontal position.

The maximum arc of movement of the trolling plate is preset by means of two spaced limit stops, such as set collars **50**, on the jack screw between which the head **47** travels. The collars are so spaced that when the head **47** contacts the lower collar the trolling plate will be in the vertical or full stop position and when the head contacts the upper collar **50**, the trolling plate will be in the horizontal or full speed ahead position. Thus, accidental overriding is prevented without any attention on the part of the operator. It will be noted a complete rotation of the control crank moves the trolling plate only the pitch distance of the threads on the jack screw. Therefore, a very accurate and minute adjustment of the boat speed can be attained.

Attention is called to the universality of attachment of the improved trolling attachment. The mounting plate with its plurality of bolt holes **28** and **33**, and with its various adaptors **29** and **30**, can be quickly fitted to any conventional motor housing. The adjustability of the clamp bolts **20** and **21** makes the propeller shaft housing clamps **16** and **17** adaptable to various propeller shaft housings. The adjustability of the bracket plate **38** with reference to the mounting plate **18**, due to the elongated bolt holes **40** provides for various forward and back positions of the mounting plate on various motors. The adjustment of the jack screw **46** in the tubular shaft **42** provides for easy and rapid vertical adjustment for motors of varying vertical spacing between the motor and the anti-cavitation fins **14**.

The anti-cavitation fins **14** are a very important and essential element for all efficient outboard motors. Therefore, any interference with their action is, of course, not desirable. It will be noted that with this attachment, the planing effect of the fins is not only not disturbed but is enhanced by clamps **16** and **17** which follow the contour of, and lie in the plane of, the conventional fins so as to increase the anti-cavitation qualities of the standard fins.

It will be noted from FIGS. 2 and 9 that the forwardly turned edges **37** on the trolling plate **34** have a greater width at their bottoms than at their top. In other words, a greater edge area is turned forwardly as the bottom of the plate is approached so that the plane area of the plate narrows as the bottom is approached to give a shovel-like contour. The latter contour acts to confine and direct the propeller stream as it discharges rearwardly and downwardly from the trolling plate to provide effective steerage way at relatively low speeds without side wash effect.

The shovel-like shape of the trolling plate is necessary to direct the propeller stream downward and away from the transom of the boat at all positions of the trolling plate. If the vertical edges of the trolling plate were of uniform width throughout their length they would act, when approaching the position of FIG. 2, to form a uniform trough which would cause a portion of the propeller stream to boil upwardly over the transom of the boat.

While a specific form of the improvement has been described and illustrated herein, it is to be understood that the same may be varied within the scope of the appended claims, without departing from the spirit of the invention.

Having thus described the invention what is claimed and desired secured by Letters Patent is:

1. Means for pivotally suspending a trolling plate rearwardly of a propeller of an outboard motor of the type having a propeller shaft housing with relatively thin anti-cavitation fins extending oppositely outward from the sides of said shaft housing above said propeller comprising: two relatively flat, hollow clamping members of sufficient length to extend forwardly and rearwardly of said anti-cavitation fins and being provided with openings in their inner edges to receive said fins into their hollow interiors; means clamping said clamping members toward each other forwardly and rearwardly of said fins so that said members will completely enclose both of the latter; and a hinge device mounted on the rear extremity of each clamping member, said trolling plate being swingably suspended from said hinge devices rearwardly of said propeller.

2. Means for pivotally suspending a trolling plate as described in claim 1 in which said clamping members are contoured to present a cross section to the water similar to the cross section of the anti-cavitation fins so that the action of the latter will be continued by said clamping members.

3. A boat speed control attachment for an outboard motor of the type having a motor housing flange and a propeller shaft housing provided with anti-cavitation fins comprising: a pair of propeller shaft housing clamps; means for clamping the clamps of said pair against opposite sides of said propeller shaft housing so as to extend rearwardly therefrom; a trolling plate pivotally suspended from the rear extremities of said clamps; a mounting plate; means for securing said mounting plate upon said motor housing flange above said clamps; a shaft bracket secured to and extending rearwardly from said mounting plate; a threaded jack screw and nut combination extending between said shaft bracket and said trolling plate; means for imparting relative rotation between said screw and nut to vary the length of the combination, said jack screw and nut combination comprising a tubular shaft supported and depending from said shaft bracket; a jack shaft threaded into and extending downwardly from said tubular shaft; means for locking said jack screw at any desired extension from said tubular shaft; an internally threaded head member threaded on said jack screw; and means for hingedly mounting said head member on said trolling plate.

References Cited in the file of this patent

UNITED STATES PATENTS

2,200,836	Didriksen	May 14, 1940
2,787,974	Johnson	Apr. 9, 1957

FOREIGN PATENTS

14,363	Great Britain	Nov. 24, 1885