Feb. 11, 1958 J. J. TROMANHAUSER 2,822,999

TRANSOM TRIM ADJUSTER FOR AN OUTBOARD MOTOR

Filed March 21, 1955

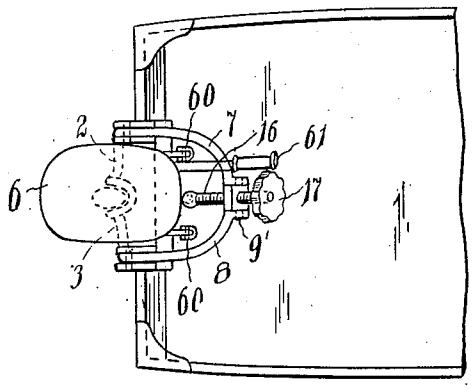


Fig. 1.

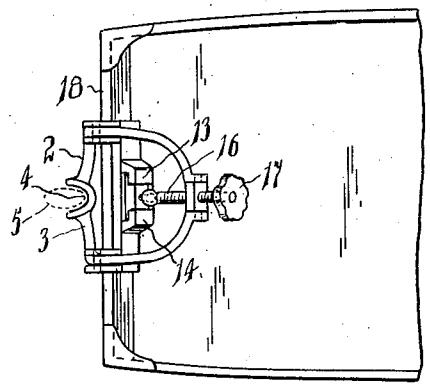


Fig. 3.

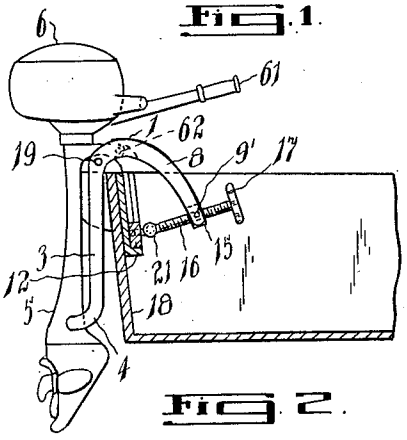


Fig. 2.

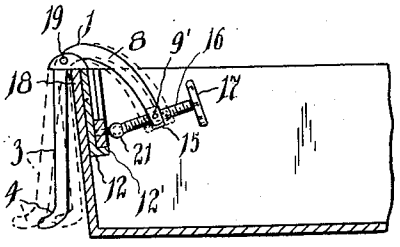


Fig. 4.

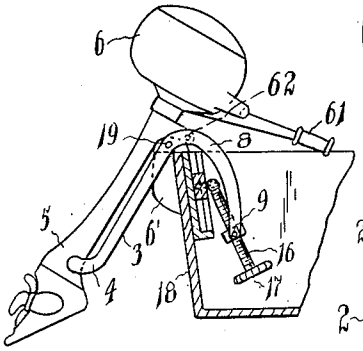


Fig. 5.

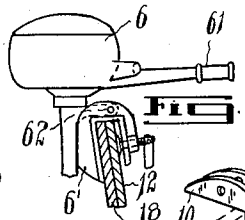


Fig. 4A.

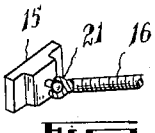


Fig. 7.

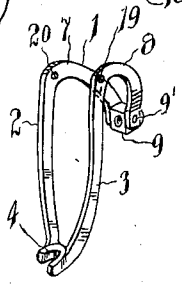


Fig. 8.

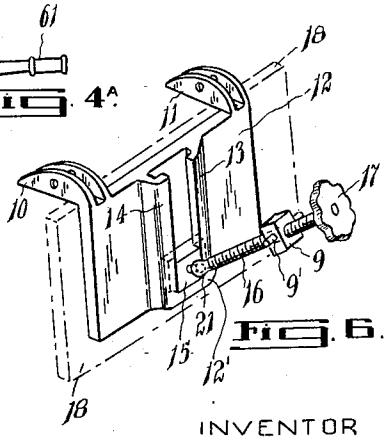


Fig. 6.

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TRANSOM TRIM ADJUSTER FOR AN OUTBOARD MOTOR

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2 Claims. (Cl. 248—4)

This invention relates to accessories for use with outboard motors and the like.

In particular the invention contemplates an arrangement for adjusting and/or compensating the attitude of an outboard motor when attached to the stern rail or transom of a boat or the like.

It is known to incorporate in the assembly of an outboard motorized propeller device means for allowing the propeller shaft and propeller assembly to tilt rearwardly and upwardly from the stern of a boat so that it may escape damage when the boat suddenly passes over an obstacle or enters very shallow water

The known means, however, have not adequately provided the best solution to the problem of operating an outboard motor and propeller under the varying conditions of sea-floor frequently encountered by users of these devices. An "outboard motor" is defined herein as a boat propeller, shaft, driving motor and control means assembled as a unit and usually fitted with clamps for attaching to the taffrail or transom of a boat, so that it resides outboard thereof and has the propeller portion immersed in the water.

It is an object of this invention to provide an auxiliary control device for use with an arrangement of the kind described, whereby the attitude of the propeller can be pre-set and restrained in the pre-set attitude.

More specifically an object of the invention is to provide a transom trim adjustment which is simple to operate and which can be used by the operator in a ready and easy manner to tilt the outboard motor on its mounting to raise the propeller for clearing an obstruction, etc.

It is a further object to provide an auxiliary device of the kind stated having the added feature of a quick release and a quick re-set means.

It is a still further object to provide an auxiliary device of the kind stated wherein the means for pre-setting the propeller may be manually adjusted over a specified range to provide a selection of set attitudes for the propeller.

It is again an object to provide a quick pre-set and quick release of the aforesaid adjustable means for selecting a specified attitude of the propeller.

According to the invention a pitch adjuster or compensator for an outboard motor comprises a cantilever arm positioned to pivot about a medial point co-acting with a pivotal support positioned at or near the taffrail of a boat, means co-operating with one end of the cantilever for cradling an outer portion of the propeller system housing near the propeller head, means co-operating with the other end of the cantilever for pre-setting and restraining the cantilever in a predetermined attitude and means comprising a quick release device for suddenly freeing the cantilever so that it can adopt an attitude determined by the normal urge of the outboard motor assembly.

In a further aspect the quick release device is modified so as to provide both a quick release and a quick pre-set of the cantilever attitude.

The invention will now be elucidated in greater detail

by description of a typical example of construction, the text being aided by reference to the accompanying drawings wherein:

Figure 1 is a top view showing a fragment of the stern portion of a boat with an outboard motor mounted thereupon and including an adjusting arrangement in accordance with the invention;

Figure 2 is a side view of the arrangement depicted in Figure 1, and is shown in the relaxed or normal attitude;

Figure 3 is a top view of the arrangement shown in Figure 1 but with the outboard motor removed to show further details of my invention;

Figure 4 is a side view of the arrangement depicted in Figure 3;

Figure 4A is a similar view to Fig. 2 but shows how the regular mounting bracket of the outboard motor clamps the attachment plate to the transom;

Figure 5 depicts the arrangement of Figure 2 in a pre-set attitude, the propeller being tilted by a predetermined amount;

Figure 6 shows details of a stern plate and slide arrangement forming a combined support and part of a quick-acting release and re-set mechanism according to the invention;

Figure 7 shows details of a sliding shoe forming part of a quick release mechanism; and

Figure 8 is a detail in perspective of the cantilever device.

In the selected form of the invention depicted in the drawings there is shown a standard outboard motor **6** which is provided with the usual mounting bracket **6'** for attachment to the transom **18** of a boat by the clamp screws **60** that form a part of the bracket. The control and steering handle is indicated at **61**. The outboard motor swivels on the stern bracket **6'** for steering purposes. It will be understood by those skilled in the art that the outboard motor is also mounted to swivel on a horizontal axis, indicated at **62**, so that it may bodily tilt on the stern bracket (see Fig. 5) for clearing obstructions, etc.

The present invention utilizes the horizontal swivel mounting of the outboard motor in providing a novel transom trim adjustment and comprehends an attachment of this kind by which the outboard motor may also be instantly tilted to throw the propeller end rearwardly and upwardly for clearing an obstruction, etc.

Now to the drawing, **1** is a U-shaped cantilever having an outboard pair of arms **2, 3** joined to a saddle **4** contoured to receive and seat a lower portion of the drive shaft housing **5** of the outboard motor **6**. The cantilever **1** also includes a pair of inboard arms **7, 8**. The arms **2, 3** desirably are curved downwardly and outwardly from the junctures of the arms **7, 8**; and the saddle is open to the drive shaft housing **5** in order to engage with the side thereof adjacent to the transom of the boat. This enables the outboard motor to be independently swung outwardly on the pivotal axis **62** of the ordinary mounting bracket **6'** by which the outboard motor is attached to the boat transom.

The arms **7, 8**, which are integral continuations of the respective arms **2, 3**, are curved downwardly and outwardly. Their distal ends are spaced apart and in the intervening gap there is provided a rocker nut **9** which is connected to said distal ends by trunnions **9'** aligned on a horizontal axis. The nut has threaded engagement with a screw **16**.

The cantilever **1** is pierced at **19** and **20** at the junctures of said arms thereof to receive pins by which it is pivoted in ears **10, 11** rigid with an attachment plate **12**. The plate **12** is fastened against the inner face of the transom **18** in an approved detachable manner. This in the present instance is accomplished by placing the stern bracket **6'**

over the attachment plate and tightening the screws **60** against this plate. The plate **12** includes two parallel slides **13, 14** which retain a captive shoe **15**. Slides **13, 14** co-act to form a guideway which is vertically arranged and in which shoe **15** slides. Screw **16** is turnable by handle **17** and is attached swivelly at one end to shoe **15** by a universal joint **21**, and co-acts with threads in nut **9**.

The cantilever is pivoted to the ears **10, 11** so that the arms **2, 3** reside outboard of the taffrail **18** and the arms **7, 8** reside inwardly thereof. The nut **9** co-acting with screw **16** is pivotally assembled to the extremities of inboard arms **7, 8**, so that the nut may swivel to accommodate the sliding action of the shoe in the guideway.

Since the plate **12** is arranged in an upright position the shoe gravitates to the lower end of the guideway where it is arrested by an end stop **12'**. This is the lowermost position. By pressing downwardly on the handle **17** the nut **9** is turned on the trunnions **9'** and the shoe end of the screw is swung upwardly which causes the shoe to slide upwardly thus drawing the inboard end of the cantilever inwardly and throwing the saddle **4** outwardly. As a result the propeller end of the outboard motor is swung rearwardly and upwardly to clear an obstruction, etc. Accordingly the operator of the boat can instantly elevate the propeller as occasion demands, such as for planing, clearing weeds or rocks. In the elevating operation the screw **16** is used as a lever. The cantilever can be tilted over a wide range of angles determined by the movement range of the shoe in the guideway and by the position of the nut **9** on screw **16**. The pivot points **19, 20** should be located as close as possible to the pivot **62** of the stern bracket. The range of the shoe can be changed by varying the position of the nut **9** on the screw **16**. By rotating the screw **16**, the range of the movement of shoe **15** can be varied between the limits defined by the length of the guideway in which the shoe operates.

By setting the shoe at dead centre, or at any point within the range of its travel the tilt of the screw stands locked in the selected attitude and will remain locked against a very considerable thrust from the propeller. In the "up" or "down" attitudes of the shoe the set of the propeller is firmly locked no matter how great the thrust of the propeller.

From the preceding description it will be manifest that the invention provides an appliance by which the propeller may be elevated and lowered by the operator as occasion demands for planing, clearing weeds or rocks.

Moreover the appliance provides for the instant raising of the propeller in the case of immediate hazard.

It will be manifest that the invention may be constructed as an integral part of an outboard motor, if so desired, instead of an independent device as disclosed in the present specification.

The arrangement described is regarded as a preferred form of the invention and is believed to be adapted without modification for use with most outboard motors presently available. However, it will be evident that various modifications can be made to the shapes of arms, shoe, slide mechanism, support plate, without departing from the spirit of my teachings and all such variants are to be regarded as lying within the ambit of the appended claims.

What I claim is:

1. A transom trim adjuster for an outboard motor of the tiltable type, comprising a generally U-shaped cantilever having a pair of co-extensive outboard arms and a pair of co-extensive inboard arms, the said two pairs of arms diverging from the bight portion of said cantilever, an attachment plate adapted to be secured to the inner face of a boat-transom in a general vertical position, means pivotally connecting the said bight portion of said cantilever to said attachment plate with said outboard and inboard arms straddling said attachment plate and swingable on said pivotal connection to and away from said attachment plate, a saddle carried by the distal ends of said outboard arms, a nut swivelly carried by the distal ends of said inboard arms, a handled screw threadedly engaged in said nut and having an inner end, and means slidably securing said inner end of the screw to said attachment plate.

2. A structure as set forth in claim 1, in which the means slidably securing the inner end of the screw to the attachment plate comprises two parallel slides on the attachment plate spaced apart to provide a guideway; and a shoe swivelly mounted on said inner end of the screw and slidably disposed in said guideway.

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