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TROLLING DEVICE FOR POWER BOATS

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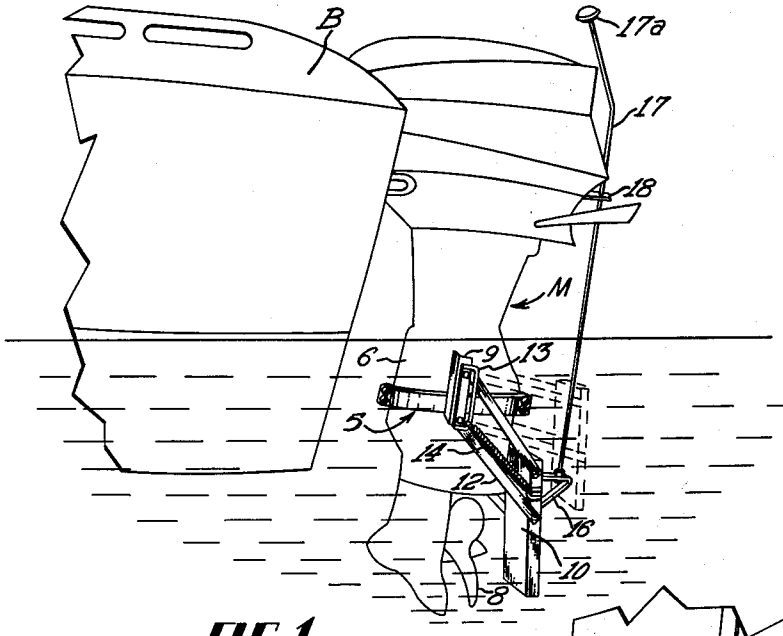


FIG 1

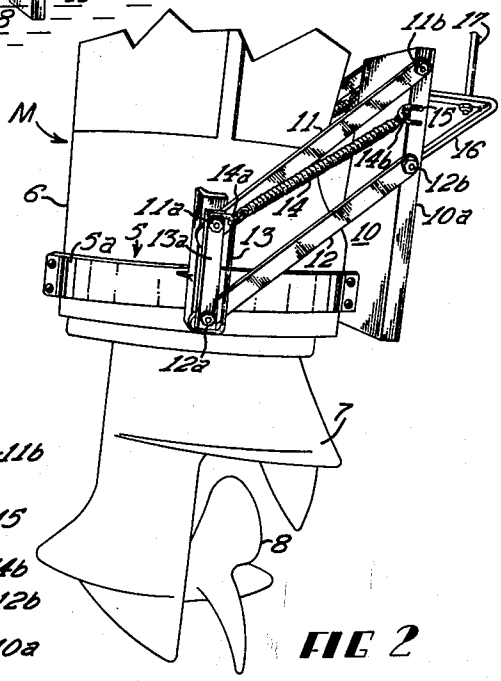


FIG 2

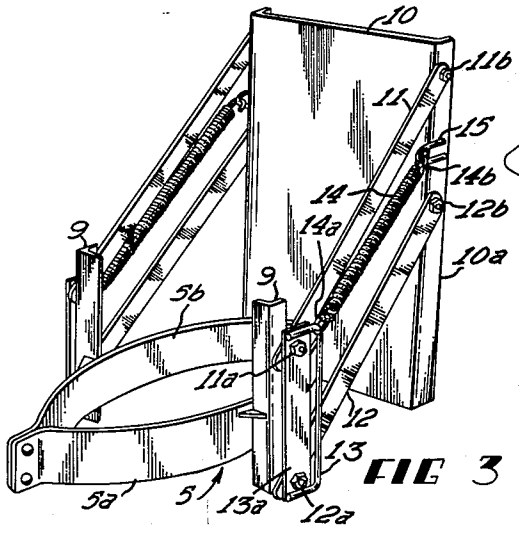


FIG 3

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TROLLING DEVICE FOR POWER BOATS

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This invention relates to a trolling device for power-driven boats, by the use of which the normal slow speed of the craft may be retarded or reduced to a point where even highly powered small craft may be successfully utilized for trolling purposes in fishing.

My invention, while specially applicable as an attachment for the larger and more powerful outboard motors, is also well suited for use with smaller craft of the inboard motor type.

In the past, some attempts have been made to drag an obstruction or retarding element rearwarnly of the boat for the purpose of decreasing the normal slow speed thereof. Such devices, to applicant's knowledge, have been cumbersome, difficult to apply, and none have been readily shiftable from a non-operating, above water position to a retarding position below the water line and conversely, from such retarding position to a non-operative position.

It is an important object of my present invention to provide a simple and highly efficient trolling device which may be readily supported upon a portion of an outboard motor or upon the stern plate or transom of the boat, which in its inherent structure, enables a water-resisting or retarding plate to be immediately and positively shifted from an inoperative position above the water line, to an operative position below the water line and behind the propeller of the motor and with provision for retaining the plate in both positions.

More specifically it is an object to provide a trolling device of the type described where the entire device may be readily attached to and supported from the medial portion of the body of an outboard motor or from the stern plate of a boat, including a generally vertically disposed retarding plate and operating connections for shifting the plate from inoperative to operative positions behind the propeller and its slip stream and wherein in either operative or inoperative position, the retarding plate may not be shifted by waves, tides or currents without voluntary action on the part of the operator.

Another and more specific object is the provision of a very compact, inexpensive attachment for the larger outboard motors wherein a support for operating connections and the retarding plate may be readily secured to conventional outboard motors, and wherein preferably, an over-dead-center spring-actuated mechanism is employed to retain the retarding plate in either inoperative or below water, operative positions, all readily controlled by an operator in the stern of a boat.

A still further object is the provision of a trolling device of the class described wherein, if it is desirable to quickly accelerate, or "gun" the motor with the trolling plate in full lowered position, such acceleration will raise the plate a slight distance above the slip stream of the propeller to enable the boat to progress forwardly, and whereafter when the motor is slowed down, the plate will again assume its normal retarding position.

These and other objects and advantages of my invention will more fully appear from the following description made in connection with the accompanying drawings wherein like reference characters refer to the same or similar parts throughout the several views, and in which:

FIG. 1 is a side eleveational view showing an embodiment of my invention attached to the medial portion of the shank housing of a large outboard motor which in turn is secured in conventional manner to the stern plate or transom of a boat, the full lines indicating the operating position of the retarding plate and dotted lines indicating a slightly raised position of the plate which will be assumed and obtained by accelerating or "gunning" the motor;

FIG. 2 is a side elevation of the same device attached to the outboard motor showing the mechanism and retarding plate in upraised, inoperative position; and

FIG. 3 is a top and side perspective view of my attachment per se with the operating connections and plate being disposed and retained in upraised, inoperative position.

The embodiment of my invention illustrated is in the form of an attachment which may be readily secured to and supported from the medial shank housing of a large size outboard motor but it will of course be understood that all of the operating mechanism and post-supporting and retarding plate of my invention are applicable to the stern plate or transom of a boat of the inboard motor type with any suitable brackets or supports substituted for the split yoke clamping member and where said supports are readily attachable to the stern plate of the boat.

In the outboard motor attachment disclosed in the drawings a suitable supporting and anchoring frame is provided which as shown, comprises a split clamping yoke **5** comprising sections **5***a* and **5***b* adapted to be in unison clamped around the central submerged part **6** of the large outboard motor indicated as an entirety by the letter M and having the medial shank housing disposed above the anti-cavitation plate **7**. The propeller **8**, as in conventional form, is guarded on the forward side and disposed below the anti-cavitation plate. The stern portion of a boat is indicated by the letter B.

The clamping yoke **5** has at opposite sides thereof rigidly secured as by welding, a pair of supporting angle posts **9** to which the operating connections are hingedly connected, said operating connections supporting at the outer ends thereof, a substantially vertical retarding plate **10** which may be constructed of suitable material such as non-corrosive sheet metal having as shown for strengthening purposes, and for providing pivotal connections, longitudinal flanges **10***a*.

The parts of the operating connections and guides at both sides of the outboard motor supported from posts **9** are identical and therefore similar parts will be similarly numbered. A parallelogram linkage in the operating connections at each side comprises an upper rigid link **11** and a parallel lower rigid link **12**. The rear ends of links **11** and **12** are pivotally connected on bolts **11***a* and **12***a* respectively with the outer face of the appropriate vertical supporting posts **9**. The outer ends of the parallel links **11** and **12** are pivotally connected by nutted bolts **11***b* and **12***b* with the appropriate longitudinal flanges **10***a* of the retarding plate **10**.

An over-dead-center mechanism for positively retaining retarding plate **10** in the raised position shown in FIGS. 2 and 3, and also in the lowered operative position shown in full lines in FIG. 1 is associated with each set of the parallel links **11** and **12** and includes these links as part of the operating mechanism. In the embodiment shown this mechanism for each of the posts **9** includes a vertical rod guide **13** which may be welded or otherwise rigidly secured to a supporting plate **13***a* secured to the appropriate post **9** by the nutted pivot bolts **11***a* and **12***a*. An elongated coil spring **14** is employed on each side of my attached structure having a rearward loop **14***a* which is freely slidable up and down the vertical guide rod **13**. The outer end of spring **14** as shown has a loop **14***b* which is swingably affixed to a loop bracket **15** which may be welded or otherwise affixed to the appropriate flange **10***a* of the retarding plate some distance below the upper end thereof.

To facilitate shifting operation or actuation of the parts, I provide a rearwardly projecting bracket or the equivalent, 16, which as shown is welded or otherwise rigidly secured to the rear central portion of the body plate 10 near the upper edge thereof. An actuation or control rod 17 extends upwardly from the bracket 16 and is secured thereto, and then is confined by a keeper or guide bracket 18 which may be affixed to the rear of the upper portion of the motor housing. Rod 17 terminates as shown, in a forwardly inclined handle portion 17*a* which extends preferably slightly above the top of the outboard motor for convenient up and down manipulation by an operator positioned in the stern of boat B.

In operation the retarding plate 10 may be very suddenly shifted by snap action from the inoperative, upraised position showin FIG. 2 to the lowered operating position shown in full lines in FIG. 1. In the operating position at least the lower portion of the retarding plate 10 is disposed a short distance behind the slip stream of propeller 8. When the actuating handle 17*a* of the device is pulled upwardly the inner end of spring 14 quickly shifts from the position shown in FIG. 1 to the position shown in FIG. 2, the loop 14*a* sliding upon the vertical guide rod 13 and in so doing the relationship between the parallel links 11 and 12 at both sides of the device and the spring 14 is in over-dead-center relationship, which provides a positive retention of the operating connections and retarding plate in the raised inoperative position above the water line.

When actuating rod 17 is depressed this snap action of the operating connections is reversed and the rear end of spring 14 slides downwardly on the vertical guide rod 13 to the position shown in FIG. 1. Again, an over-dead-center relationship is set up by the combination of the parallel links 11 and 12 at each side of the device and the positioning of the two ends of spring 14. This over-dead-center relationship in the lowered position of the retarding plate is adequate to hold the same against displacement upwardly into inoperative position even though currents, waves and tides be encountered.

However, the springs 14 at the opposite sides of my structure will yield sufficiently to enable, when a severe slip stream is thrust against the front face of the retarding plate, to raise the retarding plate a short distance to the dotted line position shown in FIG. 1. Thus, if it is desirable to "gun" the motor or accelerate rapidly to move the boat, the retarding plate will be lifted upwardly to the extent shown in FIG. 1 by the power thrust of the slip stream of the propeller. As soon as the motor is cut down to normal slow speed, the power of the springs 14 will return the retarding plate to the normal operating position, behind the propeller.

From the foregoing description and the accompanying drawings it will be seen that with the structure and relationship of my parallelogram-linkage operating connections and retarding plate, the plate may be very quickly shifted from a substantially raised, inoperative position to a lower operating position just rearwardly of the propeller 8 and in opposed relation to the slip stream thereof. Not only is the shift distance of plate 10 very substantial with my mechanism but the plate in its quick shifting action is always disposed substantially vertical to most advantageously cut the water in its snap action descent.

The slip stream from propeller 8 is deflected and diffused by the forward surface of plate 10 which at least in operative position has it lower edge disposed in horizontal alignment and preferably below horizontal alignment with the axis of the propeller. The deflection and diffusion of the slip stream slows down the forward movement of the boat much more effectively than would any retaining plate or obstruction dragged behind the boat above the slip stream of the propeller.

It will be understood that when the two pairs of links 11 and 12 are detached from their pivotal connection between the posts 9 and sides of the retarding plate the device may be compacted into small volume for shipping, storage and packaging.

It will of course be understood that various changes may be made in the form, details, arrangement and proportions of the various parts without departing from the scope of my invention.

What is claimed is:

1. A trolling device for power boats having motor-driven propellers disposed below the water surface, having in combination,
- a rigid supporting frame secured rearwardly of the stern of a power boat,
- a water resisting retarding plate positioned rearwardly of said frame and rearwardly of the boat propeller,
- supporting and operating connection mechanism between said frame and said plate for effectively positioning and shifting said plate from a position above the normal water line of the stern of said boat to a position below said water line and rearwardly of and at least opposing the upper portion of the boat propeller,
- said connection mechanism including means to retain said plate in both upraised and lowered positions,
- and said operating connections including linkage and at least one coil spring constituting in combination an over-dead-center mechanism for retaining said plate in both upraised and lowered positions.

2. A trolling device for power boats having motor-driven propellers disposed below the water surface, having in combination,
- a rigid supporting frame secured rearwardly of the stern of a power boat,
- a water resisting retarding plate positioned rearwardly of said frame and rearwardly of the boat propeller,
- supporting and operating connection mechanism between said frame and said plate for effectively positioning and shifting said plate from a position above the normal water line of the stern of said boat to a position below said water line and rearwardly of and at least opposing the upper portion of the boat propeller,
- said connection mechanism including means to retain said plate in both upraised and lowered positions,
- and said supporting and operating connections comprising parallogram linkage between said supporting frame and said plate whereby said plate in its shifting from upraised to lowered positions is maintained substantially vertically.

3. A trolling attachment for marine outboard motors having in combination,
- a supporting frame for attachment to an outboard motor housing,
- said frame including a pair of supports disposed at the respective sides of said motor,
- a water-resisting, retarding plate positioned some distance rearwardly of said supports and rearwardly and beyond the confines of said motor,
- supporting and operating connections between said supports and said plate including links at both sides of said motor which overhang said supports and extend outwardly and rearwardly from said supporting frame, and
- means associated with said links for yieldingly retaining said links and said plate in both upraised and lowered positions,
- said last mentioned means constitutes a spring mechanism related with said supports and the outer portions of said links to provide an over-dead-center mechanism for retaining said plate in both upraised and lowered positions.

4. A trolling attachment for marine outboard motors having in combination,
- a supporting frame for attachment to an outboard motor housing,

said frame including a pair of supports disposed at the respective sides of said motor,

a water-resisting, retarding plate positioned some distance rearwardly of said supports and rearwardly and beyond the confines of said motor,

supporting and operating connections between said supports and said plate including links at both sides of said motor which overhang said supports and extend outwardly and rearwardly from said supporting frame, and

means associated with said links for yieldingly retaining said links and said plate in both upraised and lowered positions,

said links constitute at each side of said motor overhanging parallelogram linkage pivotally connected at the outer end thereof with said plate to cause said plate to be maintained in substantially vertical position throughout its shifting movement to and from said lowered position.

5. Trolling device for power boats having motor driven propellers disposed below the water surface having in combination,

a rigid supporting frame secured rearwardly of the stern of a power boat,

said frame including a pair of spaced upstanding supports, said supports being substantially horizontally aligned and spaced substantially equi-distant from the axis of the boat's propeller and some distance above the normal water line of the boat,

a water resistant, retarding plate positioned some distance rearwardly of said support and rearwardly and beyond the orbit of the boat propeller,

parallel linkage pivotally interconnecting said plate

with both of said supports and supporting said plate therefrom comprising for each support a pair of substantially parallel links having their inner ends pivotally connected with said plate,

and at least one elongated coil spring having one of its ends connected with the upper portion of said plate and its opposite end connected with said supporting structure in such manner as to effect an over-dead-center relationship between said linkage and said supporting structure and plate when said linkage is swung upwardly or downwardly to thus yieldingly retain said plate in an upraised or substantially lowered position.

6. The structure set forth in claim 5 further characterized by a coil spring associated with each set of parallelogram linkage, the outer end of each of said springs being connected swingably with a portion of said plate near the top thereof, an upstanding guide rod mounted on each of said supports and the inner end of each of said spring having a loop element slidably engaging one of said guide rods, and said coil springs being under tension.

7. The structure set forth in claim 5 and said linkage being movable downwardly to position said plate in opposed relation to said boat propeller and spaced therefrom.

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