Oct. 4, 1955 D. D. SMITH 2,719,503

TROLLING PLATE ATTACHMENT FOR OUTBOARD MOTORS

Filed Sept. 19, 1952

Fig. 1

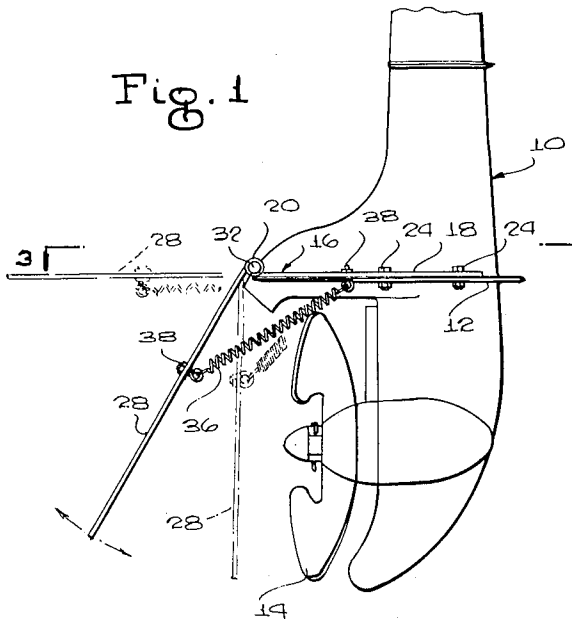


Fig. 2

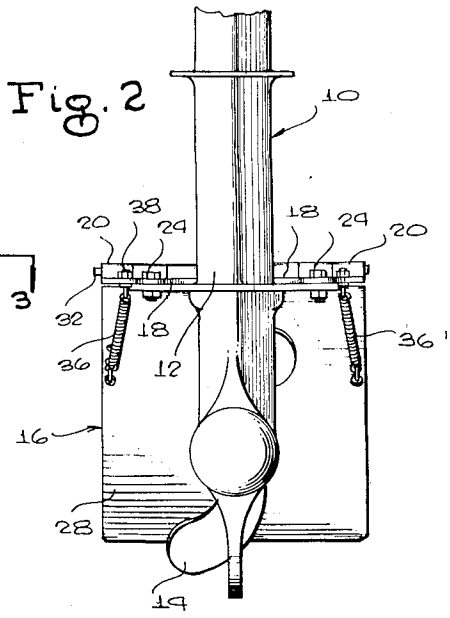


Fig. 3

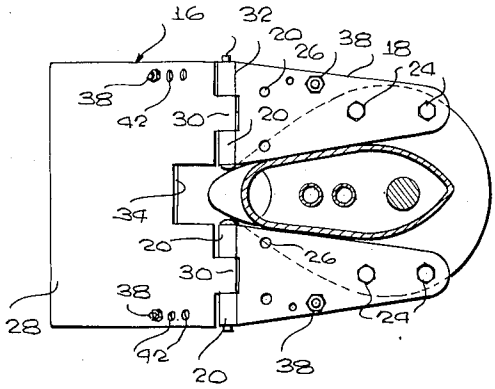
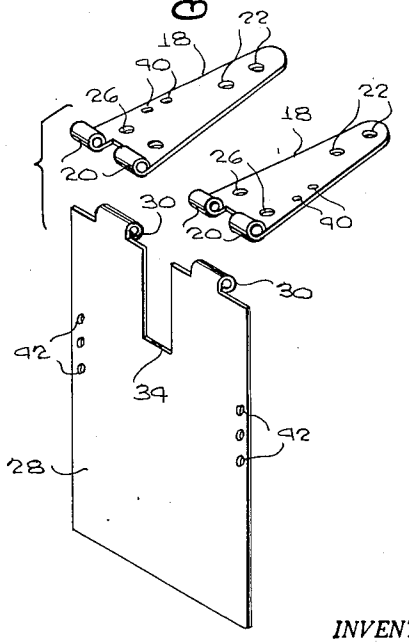


Fig. 4



INVENTOR.
DARWIN D. SMITH

BY

McMorrow, Berman & Davidson
ATTORNEYS

United States Patent Office

2,719,503

Patented Oct. 4, 1955

2,719,503

TROLLING PLATE ATTACHMENT FOR OUTBOARD MOTORS

Darwin D. Smith, Eugene, Oreg.

Application September 19, 1952, Serial No. 310,509

1 Claim. (Cl. 115—18)

This invention relates to outboard motor attachments, and more particularly, has reference to a trolling plate connectible to the casing of an outboard motor, to reduce the speed of a boat on which the outboard motor is mounted, to an extent sufficient to permit trolling.

It is well appreciated among fishermen that when one is trolling, it is desirable to travel at a very low speed. As a result, it is common practice to use a small outboard motor under these circumstances, since a large motor cannot be throttled down to an extent sufficient to slow the speed of the boat as much as is desired.

The result is that under these circumstances, one must usually have two different outboard motors, one large and one small. Or, if it is not desired to purchase two different motors, one must change propellers on a single motor, using a small propeller on a large motor when trolling. It will be appreciated that the continual changing of propellers is time-consuming, and should be avoided if possible.

In view of the above, it is the main object of the present invention to provide a speed reducing plate attachment for a large outboard motor, which, when mounted in proper position upon the motor, will be effective to slow the speed of movement of the boat on which the motor is mounted, to an extent sufficient to permit trolling.

I am aware, in this regard, that a trolling plate attachment for outboard motors, used for the purpose of reducing the speed of boat movement to an extent sufficient to allow trolling, is not new per se. However, it is an important object of the present invention to provide an attachment of the character referred to which will act automatically, by moving into an operative, speed reducing position when the motor is throttled down below a predetermined throttle setting, and to move into an inoperative position when the motor is being operated at or above said setting. In this way, it is proposed to provide an attachment of the type stated which can be left upon the motor if desired, and will not interfere with normal operation of the same, the attachment becoming operative only when the motor is throttled down to an extent sufficient to permit trolling.

Another object of importance is to provide an attachment of the character stated which can be secured to or disconnected from the casing of an outboard motor, in a minimum amount of time, and without necessity of modifying or redesigning the construction of the motor with which it is associated.

Another object is to provide a trolling plate attachment of the type stated which can be manufactured at low cost, and which will be of simple and durable construction.

Still another object is to provide a trolling plate attachment of the character stated wherein the means embodied therein that governs the automatic movement of the attachment to operative and inoperative positions, will be adjustable, so as to allow the device to be used with any of various motors having different power ratings.

Other objects will appear from the following description, the claims appended thereto, and from the annexed

drawing, in which like reference characters designate like parts throughout the several views, and wherein:

Figure 1 is a side elevational view of a trolling plate attachment formed in accordance with the present invention, a motor on which the attachment is mounted being illustrated fragmentarily, the full lines showing an intermediate position of the plate member of the device, the dotted lines showing an operative position of said plate member, and the chain dotted lines showing an inoperative position of the plate member;

Figure 2 is a front elevational view of the attachment, taken from the right of Figure 1;

Figure 3 is a transverse sectional view through the motor, taken substantially on line 3—3 of Figure 1, the attachment constituting the present invention being shown in top plan; and

Figure 4 is an exploded perspective view of the plate member and hinge leaves of the attachment.

The reference numeral **10** has been applied generally in the drawings, to designate a conventional outboard motor, said motor having the usual gear case fin **12** and the propeller **14**.

The trolling or speed reducing attachment constituting the present invention has been designated generally at **16**, and includes a pair of hinge leaves **18** of identical formation. The hinge leaves **18** are positioned at opposite sides of the propeller shaft housing of the outboard motor, overlying the gear case fin **12** in the manner shown to particular advantage in Figure 2.

The hinge leaves **18** are provided, at their rear ends, with sleeves **20**, said sleeves being spaced transversely of their associated hinge leaves. At the other end of each hinge leaf **18**, there is provided a pair of openings **22** spaced longitudinally of the hinge leaf, said openings being adapted to receive bolts or equivalent fastening elements **24**, whereby the hinge leaves are fixedly connected to the gear case fin **12**.

It will be understood that outboard motors differ in respect to their particular design, and accordingly, each hinge leaf **18** is also provided with a pair of openings **26**, said openings being aligned transversely of the hinge leaf adjacent the sleeves **20** thereof. The openings **26** are used to receive the fastening elements **24**, if the gear case fin **12** is so designed as to make it more desirable to use the openings **26**, rather than the openings **22**.

A plate member has been designated by the reference numeral **28**, and is preferably rectangular in respect to its outer configuration, said plate member having, at its upper edge, sleeves **30** adapted to be interposed between and coaxially aligned with the respective sleeves **20** of the hinge leaves **18**. A removable hinge pin **32** is extendable between the aligned sleeves **20**, **30**, and connects the plate member **28** to the hinge leaves, and hence to the gear case fin, for swinging movement about a horizontal axis. One extreme position to which the plate member **28** is swingable has been shown in dotted lines in Figure 1, this being the operative position of the plate member. A second extreme position to which the plate member is swingable has been illustrated in chain dotted lines in Figure 1, this being a horizontal, inoperative position of said plate member.

Formed in the upper end of the plate member **28**, at a location medially disposed between opposite sides of the plate member, is a deep recess **34**, said recess being utilized to provide a clearance for the water intake and exhaust outlet of the outboard motor. It will be appreciated, in this connection, that were this recess not provided, the exhaust pressures would be exerted directly against the plate member and would affect the operation of the device adversely.

A pair of springs **36** are associated with the plate member **28**, said springs being of the coiled, expansion type.

At their rear ends, the respective springs 36 are connected by eye bolts 38 to the opposite sides of the plate member 28, intermediate the upper and lower ends of the plate member. At their front ends, the springs are connected by other eye bolts 38 to the respective hinge leaves 18. In this connection, the respective hinge leaves 18 are provided, along their outer side edges, with a longitudinal series of apertures 40, any of which can be selectively employed to receive the eye bolts 38 whereby each spring is connected to a hinge sleeve. Similarly, the plate member 28 is formed, at opposite sides thereof, with longitudinal series of apertures 42 selectively usable to receive eye bolts 38 in connecting the springs to the plate member.

By reason of this construction, it will be appreciated that the tension of the respective springs 36 can be adjusted as desired, for a purpose to be made presently apparent.

In this connection, it is believed that under some circumstances, the eye bolts 38 can be omitted, and the springs 36 can merely be provided with hooked ends engageable in selected ones of the apertures 40, 42.

In use of the device, the hinge leaves 18 are first connected fixedly, by means of the fastening elements 24, to the gear case fin 12. If all parts of the device have been previously assembled, this results in the entire device being mounted upon the outboard motor, ready for use.

In trolling, the outboard motor would be throttled down to a low setting, which might be, for example, below quarter speed. When the motor is operated at this setting, the force of the propeller wash will not be sufficient to overcome the pulling force of the springs 36, and as a result, the plate member 28 will be swung under the force of the springs to the dotted line, vertical position of said trolling plate. In this position of the plate member 28, the plate member will be disposed adjacent and immediately rearwardly of the propeller 14, in the path of the propeller wash, and will have the effect of slowing the speed of movement of the boat on which the motor is mounted, to an extent sufficient to permit trolling.

If, however, the motor is operated at or above a predetermined, low throttle setting, as for example at half or full speed, the force of the propeller wash will be sufficient to overcome the restraining action of the springs 36, with the result being that the plate member 28 will swing outwardly, away from the propeller 14, to the inoperative, horizontal position of the plate member shown in chain dotted lines in Figure 1. In this position of the plate member, said member is disposed fully out of the path of the propeller wash, and normal operation of the motor is permitted.

By adjusting the tension of the springs 36, the vertical throttle setting at which the plate member will swing between its extreme positions will, of course, be changed, as desired by the user.

It is important to note that the device is one which can be left upon an outboard motor, the device eliminating the necessity of purchasing two motors or two propellers for one motor. Further, it is considered to be a highly desirable characteristic of the invention that when the device is mounted upon a motor, it permits the user to move between trolling grounds at medium or high speeds, thus to save time. In other words, if one were using a small propeller on a large outboard motor, for trolling purposes, considerable time would be lost in travelling to the trolling grounds at which fishing operations are to be conducted, or in travelling between different trolling grounds. Using the invention, however, the

fisherman is enabled to travel in a minimum amount of time to any location at which he desires to troll, and on arriving at said location, the fisherman reduces his throttle setting below the predetermined value, causing the plate member to go automatically into an operative, speed-reducing position.

Further, if desired, one is enabled to remove the plate member 28 without removing the hinge leaves 18 from the gear case fin, merely by withdrawal of the hinge pin 32.

A further advantage resides in the fact that when the invention is used on an outboard motor, it is not necessary to change spark plugs thereon. Usually a "hot" plug is used on large motors that are to be operated at low speeds, to prevent "missing" and to increase fuel efficiency. A "cold" plug is used, generally, for higher speed operation. However, when the invention is used, a "cold" plug is adequate at all times, since the trolling plate affords a means against which the motor can pull and prevents the colder plug from fouling at trolling speeds.

It is believed apparent that the invention is not necessarily confined to the specific use or uses thereof described above, since it may be utilized for any purpose to which it may be suited. Nor is the invention to be necessarily limited to the specific construction illustrated and described, since such construction is only intended to be illustrative of the principles of operation and the means presently devised to carry out said principles, it being considered that the invention comprehends any minor change in construction that may be permitted within the scope of the appended claim.

What is claimed is:

A speed reducing attachment for outboard motor powered boats, comprising, a plate member, a pair of hinge leaves adapted for fixed connection to the gear case fin of an outboard motor and having a separable hinge connection to said member adapted for connecting the member to the fin for swinging movement about a horizontal axis, between one extreme, substantially vertical position in which the plate member is adapted to be positioned rearwardly of the propeller of the motor across the path of the propeller wash, thereby to slow the speed of the boat on which the motor is mounted, and a second extreme, substantially horizontal position in which the plate member is adapted to be swung away from the propeller out of said path; coiled tension springs connected between the plate member and said hinge leaves and tending to urge the plate member to the first extreme position thereof, said springs adapted to be tensioned at a predetermined value to yield on rotation of the propeller at and beyond a predetermined throttle setting of the motor, to shift the plate member under the force of the propeller wash to the second extreme position thereof; said plate member having spaced longitudinally disposed series of spaced apertures, each of said springs selectively engageable in one aperture of said respective series of apertures for selectively adjusting the tension of said springs.

References Cited in the file of this patent

UNITED STATES PATENTS

1,576,237	Dawson	Mar. 9, 1926
2,050,336	Karasinski	Aug. 11, 1936
2,078,179	Johnson et al.	Apr. 20, 1937
2,256,898	Ehmke	Sept. 23, 1941