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M. E. COCHRAN

2,864,330

BRAKING OR TROLLING ATTACHMENT FOR BOATS

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FIG. 1.

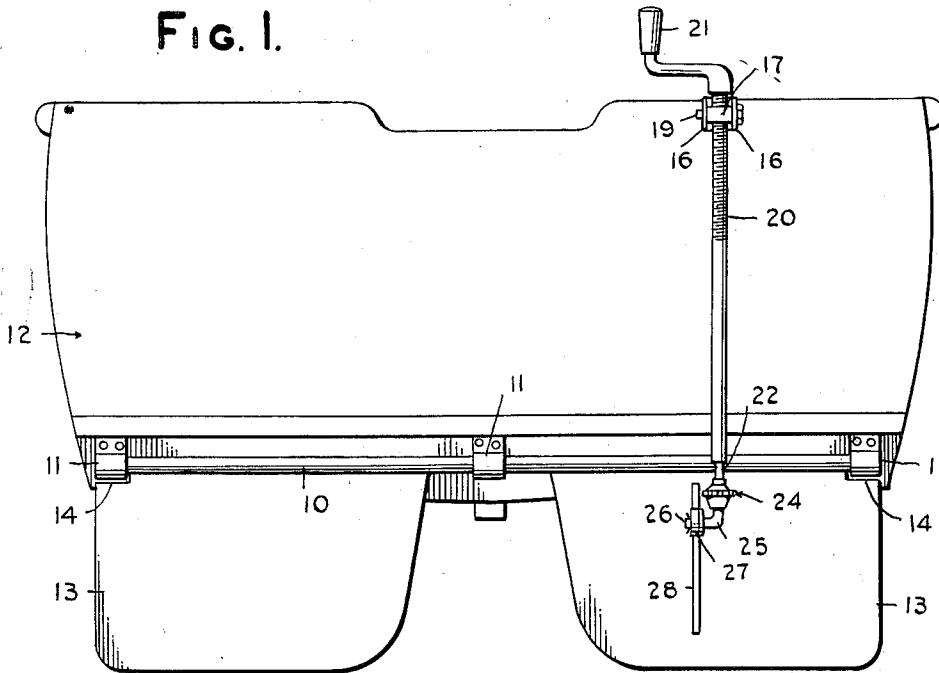


FIG. 2.

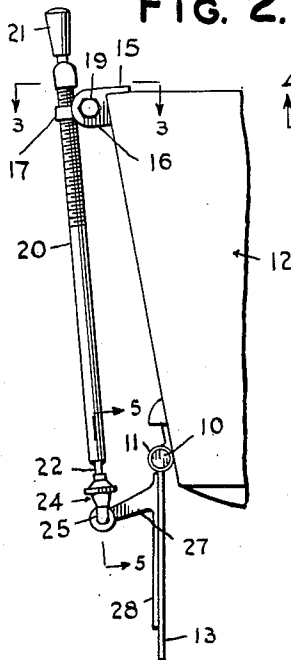


FIG. 3.

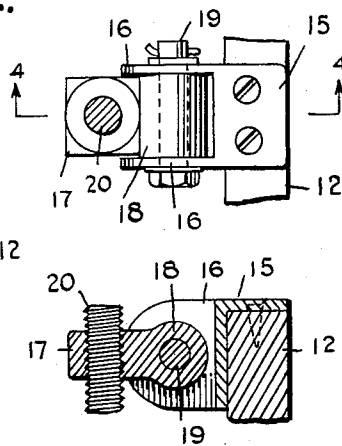
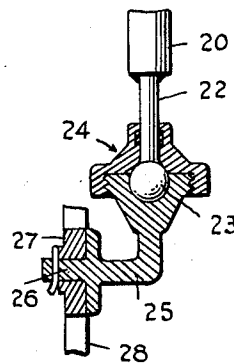


FIG. 4.

FIG. 5.



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BRAKING OR TROLLING ATTACHMENT FOR BOATS

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1 Claim. (Cl. 114—145)

The present invention relates to attachments for motor boats, and more particularly to a brake and planar attachment for motor boats.

A primary object of the invention is to provide a motor boat attachment which may serve as a trolling brake for permitting the boat to run at reduced speed through the water during trolling, without unduly decreasing the speed of the motor.

Another object is to provide an attachment for motor boats which is designed primarily to enable a small outboard motor to "plane out" or make the boat run level in the water, at all speeds, thereby increasing the speed of the boat for a given motor speed approximately twenty-five percent.

Another object is to provide a motor boat attachment of the above-mentioned character which is fully adjustable between a neutral position, wherein it has no effect upon the boat, to a full braking or retarding position, wherein the boat will move at a substantially constant minimum speed, during trolling or the like.

Another object of the invention is to provide means for adjusting or positioning the braking attachment positively in all adjusted positions, without the aid of separate locking devices, springs or the like, and enabling the operator to exercise full control over the attachment at all times.

Another object is to provide means for accurately or finely adjusting the planar and braking attachment in any desired position, the adjusting means also serving to positively hold or lock the attachment in the desired position.

A still further object is to provide an attachment of the above-mentioned character which is simplified, rugged and durable in construction, and inexpensive to manufacture and install.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawings forming a part of this application, and in which like numerals are employed to designate like parts throughout the same,

Figure 1 is a side elevation of a motor boat attachment in accordance with the invention, and showing the same installed upon the stern of a motor boat,

Figure 2 is a further side elevation of the attachment, taken at right angles to Figure 1, part broken away,

Figure 3 is an enlarged fragmentary horizontal section taken on line 3—3 of Figure 2,

Figure 4 is a fragmentary vertical section taken on line 4—4 of Figure 3, and,

Figure 5 is an enlarged fragmentary substantially vertical section taken on line 5—5 of Figure 2.

In the drawings, wherein for the purpose of illustration is shown a preferred embodiment of the invention, the numeral 10 designates a horizontal transverse rock shaft of a desired length, freely journaled at its opposite ends and longitudinal center within suitable bearings 11,

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these bearings being suitably rigidly secured to the stern of a motor boat 12, near and above the boat bottom, as shown. The rock shaft 10 may extend for substantially the entire width of the stern of the boat, as indicated in Figure 1.

Rigidly secured to the rock shaft 10, as by welding or the like is a pair of control plates or fins 13. Each control plate 13 may be generally rectangular in shape, as indicated, and the plates 13 preferably extend from the ends of the rock shaft 10 to points near and outwardly of its longitudinal center. The control plates 13 are flat and rigid, and the plates lie in the same plane, radially of the rock shaft 10. Each control plate 13 is notched at 14, adjacent its outer upper corner to provide clearance for the control plates to pass about the outer bearings 11, when the rock shaft 10 rotates. The notches 14 also serve to prevent any appreciable endwise movement of the rock shaft within the bearings 11. The control plates 13 are of substantial area, as shown, and together span a major portion of the width of the stern of the boat. When in the depending vertical position shown in the drawings, the control plates 13 project a substantial distance below the bottom of the boat so as to afford a considerable braking or retarding action on the motor boat.

Means are provided to adjust or swing the control plates 13 between horizontal or neutral positions and the depending vertical or full braking positions shown in Figures 1 and 2. This means comprises a bracket 15, suitably rigidly secured to the stern of the boat, adjacent its upper edge, as shown. The bracket 15 is preferably arranged at or near the transverse center of one control plate 13, and the bracket has a pair of rearwardly projecting apertured knuckles 16, preferably formed integral therewith. A screw-threaded adjusting nut 17 is provided, and this nut has a sleeve 18 rigidly secured to one side of the same, as by welding. The sleeve 18 engages horizontally between the apertured knuckles 16, and receives a pintle 19, bolt or the like, as shown. By this means, the adjusting nut 17, which is generally horizontal is pivotally secured to the bracket 15 for limited vertical swinging movement.

A generally vertical screw-threaded control shaft 20 has screw-threaded engagement with the nut 17, and is arranged near and rearwardly of the stern of the boat. The control shaft 20 is provided at its upper end and above the nut 17 with a suitable hand crank 21 for turning it. The control shaft 20 extends downwardly adjacent the stern of the boat to a point near the rock shaft 10, and is provided at its lower end with a reduced cylindrical shank 22 rigidly secured thereto, terminating in a spherical head or ball 23, as indicated.

The reduced shank 22 and ball head 23 are swiveled within a suitable two-part socket 24 as best shown in Figure 5, and the socket 24 is rigidly secured to an L-shaped pivot pin 25, which may be formed integral with the lower section of the socket 24, as shown in Figure 5. The horizontal portion of the L-shaped pivot pin 25 is freely pivotally secured as at 26 with a rearwardly projecting generally horizontal arm 27 of a control bell crank, having its other arm 28 rigidly secured, as by welding, to the rear face of the adjacent control plate 13, near the transverse center of the latter. The control bell crank, including arms 27 and 28 is vertically disposed, as shown, and in a plane at right angles to the control plates 13. The horizontal part of the pivot pin 25 is arranged at right angles to the arm 27, as shown. The arrangement is such that when the control shaft 20 is turned by means of the crank 21, the shank 22 and ball head 23 turn or swivel within the socket 24 and the pivot pin 25 is raised or lowered for swinging the control bell crank and both control plates 13 upwardly or

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downwardly about the longitudinal axis of the rock shaft 10, which turns within its bearings 11.

In use, the control plates 13 may be swung between horizontal or neutral positions, at which they have no effect upon the forward movement of the boat, and depending vertical positions, as shown in the drawings, wherein they have full braking or retarding action on the boat.

Intermediate the neutral and full braking positions, the control plates 13 may assume an infinite number of planing positions, wherein they will cause the boat to run level in the water at various speeds, thus increasing the speed and efficiency of the boat. The proper intermediate or planing position for the control plates 13 will depend upon the weight of the boat and its speed.

When the boat is operated by an outboard motor, for example, and it is desired to run the boat at a slow constant speed during trolling, the control plates 13 are adjusted to the full downward or braking position where they will afford the maximum braking action. This is necessary during trolling with an outboard motor, since outboard motors are essentially constant speed motors, and with my attachment, the boat may be caused to run at a very low rate of speed, without reducing motor speed.

I wish to emphasize that the control means for the plates or fins 13, including the shaft 20 and associated elements serves the dual purpose of adjusting the plates 13 to the desired position and also of securely holding or locking them in the selected adjusted position without the use of separate locking devices, springs or the like. Once the screw shaft 20 is turned to bring the control plates 13 to the desired angular position and released by the operator, the control plates will be securely held or locked against upward or downward movement, until the operator again turns the crank 21. This enables the operator to maintain positive and certain control over the control plates 13 and over the attitude and speed of the boat at all times. Also, through the medium of the control shaft 20 and crank 21, the attachment may be adjusted to the desired position with a minimum of effort by the operator.

It is to be understood that the form of the invention herewith shown and described is to be taken as a preferred example of the same, and that various changes in the shape, size and arrangement of parts may be re-

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sorted to, without departing from the spirit of the invention or the scope of the subjoined claim.

Having thus described my invention, I claim:

The combination with the hull of a motorboat having a stern and bottom, of bearings mounted upon the stern adjacent to the bottom, a horizontal rock shaft journaled in the bearings, a control plate mounted upon the rock shaft and extending radially of and beyond the same for a substantial distance, said control plate also extending longitudinally of the rock shaft for a substantial portion of the length of the rock shaft, an operating arm disposed upon the rear side of the control plate and arranged generally at a right angle to the same and rigidly secured to the control plate and extending rearwardly beyond the same, a generally vertical control shaft having its upper end portion screw-threaded, said control shaft being disposed close to and rearwardly of and generally parallel with said stern, a nut having screw-threaded engagement with the upper screw-threaded end portion of the control shaft and provided with a sleeve, a bracket rigidly mounted upon the stern adjacent to the upper end of the stern, a horizontal pivot element carried by the bracket and receiving the sleeve thereon and pivotally supporting the same so that the nut may swing in a substantially vertical plane, a horizontal crank arranged above and adjacent to the stern and rigidly mounted upon the upper end of the control shaft, a ball carried by the lower end of the control shaft, an L-shaped pin including horizontal and vertical portions, the horizontal portion being arranged at a right angle to the operating arm and pivotally mounted thereon to turn upon its longitudinal axis with relation thereto, a socket carried by the upper end of the vertical portion and having the ball swiveled therein, the arrangement being such that the control plate may be adjusted from a substantially horizontal position to a substantially vertical position and will project below said bottom.

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