Fig.-6

INVENTOR.
Clem G. Branstrator
BY
Charles S. Pinfield
ATTORNEY
This invention relates generally to supports and more particularly is directed to a manually or device for supporting an outboard motor to the stern of a boat in a manner whereby the motor can be bodily raised and lowered.

Anyone familiar with the operation and use of the various conventional makes or models of outboard motors recognizes the fact that such motors are of little, if any, value in relatively shallow water over reefs, sandbars and adjacent shore lines, because the propeller of the motor, under normal operating conditions, is located at a level or levels which will cause it to strike bottom.

It is also recognized that a conventional motor is provided with means to permit the lower extremity of the drive shaft housing carrying the propeller to automatically swing or tilt rearwardly about a horizontal axis whenever it strikes an obstruction such as a lake bottom, stone or log, so as to protect in some measure the propeller and/or driving mechanism therefrom due to breakage or damage. Such a motor may also be tilted directly by an operator to swing the motor to an inoperative position whenever the depth of the water is not sufficient to permit operation of the motor for propulsion purposes. Whenever the motor is tilted from its normal vertical operating position, the thrust or force exerted by the propeller tends to drive the stern of a boat downwardly instead of forwardly. In fact, the efficiency of the motor for driving purposes is progressively reduced as the propeller is tilted upwardly.

Another factor is the weight of an operator and/or the load carried by a boat. The heavier the weight the lower the propeller will be in the water so that this conventional tilting arrangement is of little practical value in relatively shallow water.

With the foregoing in mind, the principal object of the subject invention is to provide a supporting assembly embodying improved principles of design and construction whereby the motor can be operated efficiently in shallow water, which is not permitted by the conventional setup of attaching a motor to the stern board of a boat.

More particularly, an object of the invention is to provide or equip a conventional motor with means whereby the motor, or at least the propeller, can be bodily raised or lowered while maintaining the motor substantially in its normal vertical operating position. In other words, the motor can operate at maximum efficiency so long as the depth of the water is slightly greater than the length of the propeller.

An important object of the invention is to provide a unique motor supporting assembly which can be readily adjusted to compensate for the weight of an operator and/or the load or draft variations in different boats. If, for example, the stern rides low in the water the motor can be raised so that the propeller will take a position for maximum efficiency to drive the boat forwardly. A significant object of the invention is to provide a supporting assembly comprised for fastening the assembly to the stern board of a boat, a support for a conventional motor, means, preferably of the linkage type, operatively connecting the support to the fastening means, and means under the control of the operator whereby the support can be raised and lowered as desired.

A specific object of the invention is to provide the linkage means with dampening or shock absorbing means so that any vibration produced by a motor will not be transmitted to the boat. Another object of the invention is to provide means whereby the shock absorbing means can be readily adjusted.

A further object of the invention is to provide a manual control which can be easily and quickly manipulated to raise and lower the support constituting a component of the assembly, the control being conveniently located for operation.

Also, an object of the invention is to provide a supporting assembly which will locate the motor so that the operator will have additional space available at and in the vicinity of the rear seat of a boat.

A particular object of the invention is to provide a setup in which the means operatively connecting the attaching means and support is designed and constructed to provide additional clearance for convenient operation of the clamping means on a motor.

Another object of the invention is to provide improved means for connecting the support to the linkage means so that the support is firmly secured in place and there is less likelihood that the support will be damaged by the clamping means on a motor.

Another object of the invention is to provide a supporting assembly which is substantial in design and construction, efficient, and collapsible to facilitate storage of the assembly.

Another object of the invention is to provide a supporting assembly which requires practically no maintenance and which can be economically manufactured and assembled on a production basis.

Many other objects and advantages of the invention will appear after the description hereinafter set forth is considered in conjunction with the drawings annexed hereto.

In the drawings wherein the preferred embodiment of the invention is exemplified:

Figure 1 is a side view in elevation of the supporting assembly attached to a boat with a motor carried by the assembly;

Figure 2 is a side view in elevation of the supporting assembly showing the operative relationship of certain of its components;

Figure 3 is a top section of the assembly illustrated in Figure 2 showing details of construction;

Figure 4 is a transverse section taken through an appropriate part of the assembly to exemplify details of the shock absorbing means;

Figure 5 is an end view in elevation of the assembly shown in Figure 3 and illustrating details of the means for attaching the assembly to a boat; and

Figure 6 is a side view in elevation of a modified construction of a supporting assembly in which provision is made to obtain additional clearance for the operation of the clamp on a conventional motor.

As clearly exemplified in the drawing, numeral 1 represents a boat having a stern board 2 which carries the motor supporting assembly constituting the subject invention.

The supporting assembly, among other things, includes fastening or attaching means generally designated 3 for detachably connecting the assembly to the stern board, a support 4 which is adapted to carry a conventional motor 5, means 6 operatively connecting the support and attaching means, and operating means 7 whereby the support 4 may be raised and lowered with respect to the
attaching means for accomplishing the objectives above set forth.

The attaching means 3 may be designed and constructed in various ways but as herein illustrated, it is preferably made in the form of a clamp which is very substantial in design and construction so as to withstand considerable stress and shock. The clamp, among other things, includes a generally U-shaped member 17 for receiving the upper part of the stern board as shown in Figure 1. This member includes a relatively long depending outer leg 8, a pair of corresponding depending inner shorter legs 9, and a transverse bridge 10 joining the legs together. The outer leg is of a width and length to provide a good bearing surface against the outer surface of the stern board and the inner legs are spaced apart a sufficient distance to locate the clamping screws 11 in positions to secure a positive clamping action on the stern board. The lower extremity of each of the inner legs has an internally threaded bearing 12 which carries a clamping screw. The inner end of each screw is provided with a pressure plate 13 for engaging the inner surface of the stern board, and the outer end of each screw has a handle 34 for manipulating the screw. The bridge 10 of the member is adapted to rest upon the upper edge of the stern board.

The manner of operatively connecting the attaching means 3 to the support 4 may be accomplished in various ways but the means preferably utilized for this purpose comprises a parallel motion linkage arrangement. The shock absorbing means alluded to above is incorporated in this linkage arrangement. The linkage includes a pair of corresponding elongated links 15 having their ends pivotally connected to the upper extremities of the outer leg 8 of the U-shaped member and the support 4 by bolts 16 and 17, and a pair of links 18 and 19 having their ends pivotally connected to the lower extremities of the legs 9 and support by bolts 20 and 21 as clearly shown in Figures 2 and 4. The unthreaded ends of the upper bolts 16 and 17 are keyed to the upper link 15 and the unthreaded ends of the lower bolts 20 and 21 are keyed to the lower link 19.

More specifically in this respect, the outer leg 8 is provided with an upper generally transverse tubular formation 22 and a lower formation 23. The support 4 is similarly provided with an upper transverse tubular formation 24 and a lower formation 25. All of these formations are substantially identical in character and each, as represented in Figure 4, is provided with a pair of corresponding cylindrical sockets 26 connected by an intermediate cylindrical opening 27.

The shock absorbing means embodied in the linkage arrangement is preferably made by disposing a tubular resilient element, such as 28 in each of the cylindrical sockets as shown in Figure 4. Each of the bolts extend through a pair of axially aligned elements for resilient support thereby and so that the bolts do not in any way engage the support or U-shaped member. Each element is of a length to be compressed by the tightening of a nut 29 and is provided with a round flange 30 to normally prevent metal to metal contact between the links, U-shaped member, and the support 4. By merely manipulating the nuts the resilient elements can be readily compressed to adjust and obtain a smooth stable operating action between the components of the supporting assembly. In order to prevent gauling between the support, linkage and the U-shaped member and/or torsional strain on the element between the support 4 is raised and lowered, a washer 31 of any suitable material, such as Bakelite, is arranged between each of the flanges 30 and the end of each link. With this unique setup the support is resiliently supported with respect to the linkage and the linkage with respect to the attaching means to doubly insure against transmission of undesirable vibration or shock to the boat which may be produced by the motor.

The means for controlling the movement of the support for the motor 5 may be accomplished in different ways but as depicted, the control includes an elongated threaded drive shaft 32 which is jointly carried by the attaching means and the link 19. The threads on this shaft are of a type to promote easy and relatively fast manipulation of the control to raise and lower the support 4 with a motor thereon. Moreover, particularly, one side of the bridge 10 of the U-shaped member of the attaching means is provided with an internally threaded offset 33 and the link 19 with an upwardly extending arm 34 constituting a lever as shown in Figures 3, 4 and 5. This arm is angled outwardly to clear the link 15 thereabove and its free end is provided with a threaded aperture 35.

A generally T-shaped fitting 36 shown in Figure 3 is connected to the inner end of the drive shaft. This connection is preferably established by providing the fitting with a socket within which the shaft end is keyed or fixed. A crank or lever 37 is also keyed or otherwise secured to the fitting for manually rotating the shaft. The crank carries a rotatable handle 38 of a convenient size for manipulating the crank. This fitting is also provided with a threaded stud 39 which pivots in the threaded offset 33 when the shaft is operated by the crank.

Another fitting 40, shown in Figures 1 and 4, is provided with a threaded stud 41 which pivots in the threaded aperture 35 in the free end of the lever arm 34. This fitting also has a threaded opening which receives and connects with the drive shaft as clearly shown in Figures 2 and 4. The fittings 36 and 40 provide swivel connections between the drive shaft, link 19 and the U-shaped member. With this novel operative relationship, it will be manifest that rotation of the crank 37 by its handle in one direction will cause the shaft to pull the lever arm 34 toward the attaching means and thereby lift the support upwardly in parallel relation to the attaching means as shown by the full lines in Figure 1, and that by rotating the crank in an opposite direction will cause the support to descend and lower the motor 5 as depicted by the dotted lines in such figure. This figure of the drawing more or less illustrates the operating range or maximum limits or extent of travel of the support. It will be noted that the support, due to the particular form of linkage shown will travel vertically as well as swing in a slight arc. The organization illustrated is designed to permit an operator to raise and lower a motor within a range of approximately one foot, but this range may of course be varied to meet different operational requirements by merely modifying certain of the components and the connections therebetween. The supporting assembly now being utilized is designed and constructed to support conventional motors having a horse power rating that the ordinary person using for fishing. Observations for motors having a high rating, the supporting assembly would be changed in some respects so that it will carry a heavier load.

The support 4 for the motor 5, as depicted in Figures 2 and 4, includes a substantial metal frame having a generally vertical portion 42 which carries the tubular formations 24 and 25 referred to above. This frame also includes a generally horizontal bracket having a base wall 43 and an upstanding wall 44. A block 45 of suitable material, such as hard wood, is detachably secured to the bracket as shown in Figures 2 and 4 by screws 46 which extend edgewise through the block and threadedly connect with the base wall 43. The upper edge of the block is countersunk to locate the heads of the screws below said edge. The block is preferably rabatted at 47 to receive the upstanding wall 44 so as to assist in preventing displacement of the block and, at the same time, locate the rear face of the block flush with the rear bearing surface of the portion 42. With this arrangement, the U-shaped clamp on the motor will receive the upper part of the support 4 so that the leg 48 of the clamp will find support on both the upstanding wall 44 and block 45, the bridge of the clamp on the upper edge of the block, and the pressure members on the clamping means will engage the front side of the block.
2,757,888

as shown in Figures 1 and 2. The support is thus held in substantially spaced apart parallel relation to the stern board of a boat.

The embodiment of the invention exemplified in Figure 6 of the drawing substantially corresponds to the disclosure above described, except that the upper links of the linkage arrangement are angled as indicated at 49 so that additional clearance is provided for convenient manipulation of the clamping screws 50 of the clamping means on the motor unit 5.

In view of the foregoing description it will be apparent that the supporting assembly affords a unique setup whereby a conventional outboard motor can be readily bodily raised and lowered and thereby permit use of the motor in relatively shallow water which could not be accomplished in any practical way prior to the advent of the subject invention. The assembly is so designed and constructed that it is collapsible to facilitate storage and relatively light in weight for easy handling. The assembly has proven very efficient and satisfactory under all conditions of use.

The term “boat” is intended to include any marine craft or part thereof. The term “attaching means” is intended to include any form of means for fastening or securing the assembly to a boat or motor. The term “support” is intended to include any form of means which will carry an outboard motor. The term “motor unit” as defined in the claims is intended to include a complete conventional motor. The terms “control” or “operating means” is intended to include any arrangement which can be manually or power actuated to direct movement of the support.

Having thus described the invention, it will be obvious that various immaterial modifications may be made in the same without departing from the spirit of the invention as defined in the claims.

I claim:

An assembly for supporting and adjusting an outboard motor from a boat comprising attaching means for rigid connection with the transom of a boat, an outboard motor support, parallel linkage connecting the motor support in spaced parallel relation to said attaching means including pairs of upper and lower links having their opposite ends pivotally secured respectively to the motor support and the attaching means, and manually operable adjusting means for raising and lowering the motor support on the attaching means substantially in a vertical plane including an upwardly extending lift arm rigidly connected to one link of the lower pair of links and terminating adjacent to one link of the pair of upper links, a travelling nut pivotally mounted on the upper end of the lift arm and extending laterally therefrom, said attaching means having an upper portion adapted to overlie the transom of a boat, a bearing pivotally mounted on the upper portion of the attaching means above the transom, a threaded feed shaft mounted in said bearing for turning movement only and threaded into the nut, said shaft extending along the side of said upper portion, and an operating handle secured to the shaft for turning said shaft disposed beyond the end of said upper portion remote from said parallel linkage.

References Cited in the file of this patent

UNITED STATES PATENTS

407,409 Lucas ------------ July 23, 1889
604,083 Richards ----------- May 17, 1898
1,638,938 Koenigkramer ------ Aug. 16, 1927
1,686,341 Nathanson -------- Oct. 2, 1928
1,690,435 Savage ------------ Nov. 6, 1928
1,704,303 Savage ------------ Mar. 5, 1929
1,824,822 Kradlof ---------- Sept. 29, 1931
2,366,860 Kraft ------------ Jan. 9, 1945
2,379,256 Schleisner ------- June 26, 1945
2,454,972 Martin ----------- Nov. 30, 1948
2,467,548 Bradley --------- Apr. 19, 1949
2,545,515 Gannett et al. ---- Mar. 20, 1951
2,630,991 Long ------------- Mar. 10, 1953
2,643,837 Rivers ---------- June 30, 1953
2,682,854 Cohen ----------- July 6, 1954