Nov. 26, 1963 G. D. KELLY 3,112,092

CLAMP FOR MOUNTING OUTBOARD MOTORS

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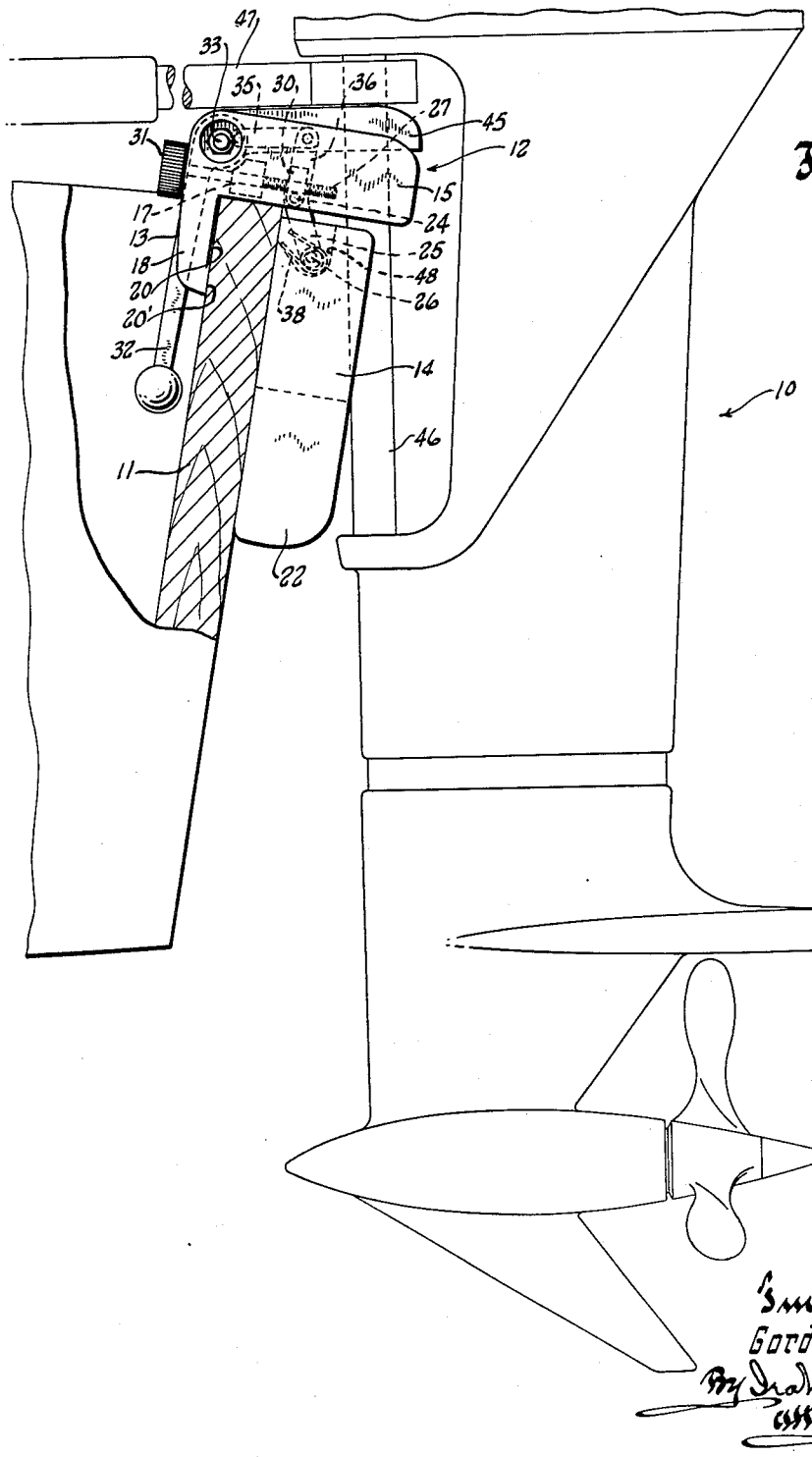

Fig. 1.

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Fig. 2.

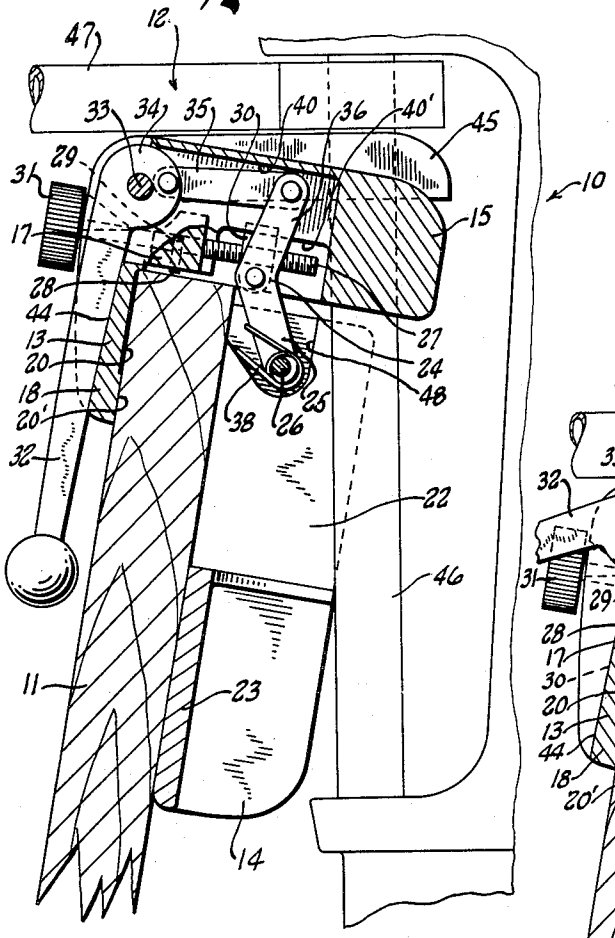
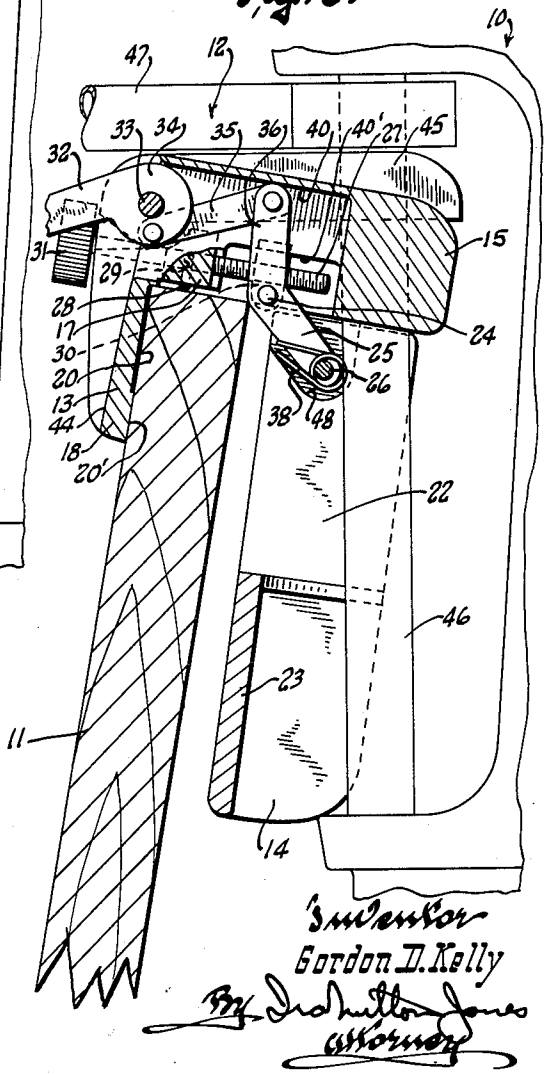


Fig. 3.



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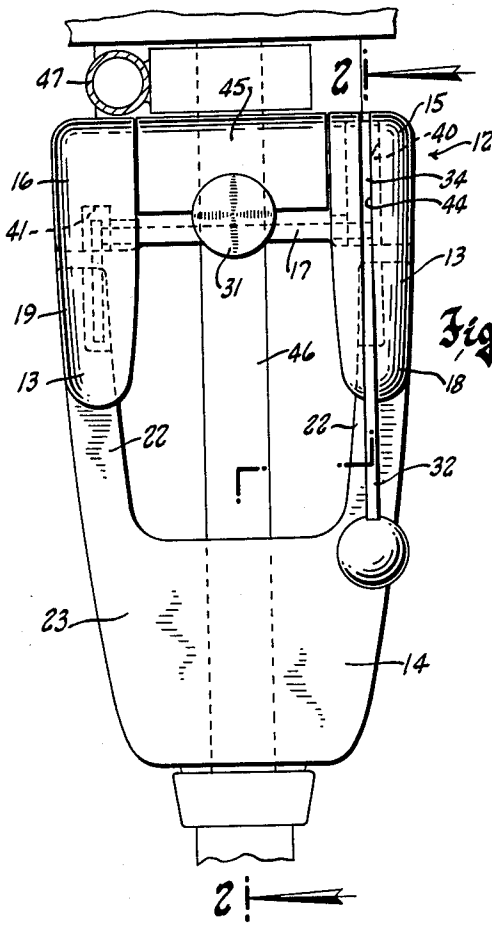


Fig. 4.

Fig. 5.

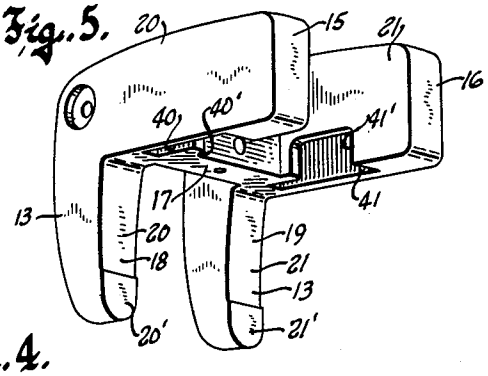


Fig. 6.

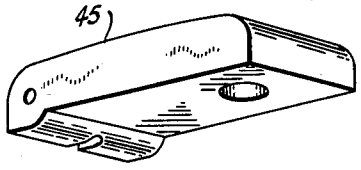
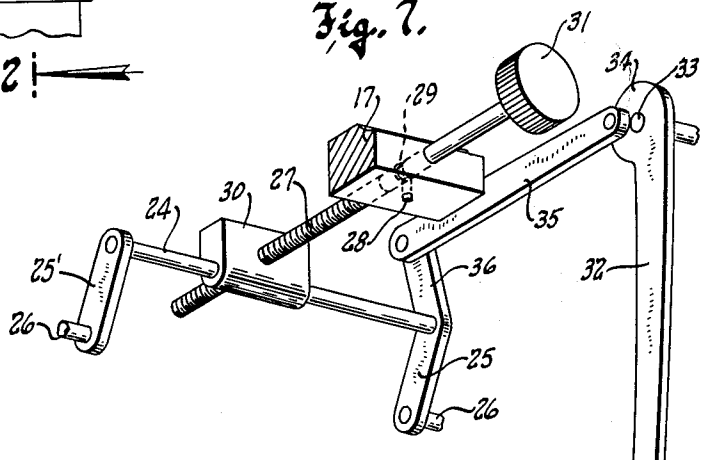


Fig. 7.



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3,112,092

CLAMP FOR MOUNTING OUTBOARD MOTORS

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5 Claims. (Cl. 248—4)

This invention relates to outboard motor mounts, and refers more particularly to a clamp by which an outboard motor may be readily detachably mounted on the transom of a boat.

As is well known, the conventional outboard motor mount usually has one or more clamping screws by which it is removably secured to the transom of a boat. The use of clamping screws in that manner of course enables the motor mount to be attached to transoms of different thicknesses, but since the owner of an outboard motor seldom has occasion to mount the same on a number of different boats, and ordinarily always uses the motor with the same boat, it would be advantageous if the clamp by which the mount is secured to the boat transom could be adjusted to that particular transom thickness and then secured in place by simply swinging a lever or handle, as distinguished from having to tighten a plurality of clamping screws. The attainment of such a motor mount is the purpose and object of this invention.

More specifically, it is an object of this invention to provide a clamp for readily detachably mounting an outboard motor upon the transom of a boat, which consists of a pair of articulated jaws between which the boat transom may be clamped, and a linkage and lever arrangement by which the jaws may be drawn together or spread apart by simply swinging a handle about a pivot, and has means for adjusting the linkage to enable the clamp to be fitted to boat transoms of different thicknesses.

Another object of this invention is to provide a clamp of the character described which lends itself well to embodiment into and in fact actually contributes to the design of the complete motor.

Still another object of this invention is to provide a clamp of the character described wherein the mechanism to effect opening and closing of the clamp and also the adjustment thereof to different transom thicknesses, is enclosed within or at least covered by the structure of the clamp itself, so as to improve the appearance of the clamp and protect the mechanism.

With the above and other objects in view which will appear as the description proceeds, this invention resides in the novel construction, combination and arrangement of parts substantially as hereinafter described and more particularly defined by the appended claims, it being understood that such changes in the precise embodiment of the hereindisclosed invention may be made as come within the scope of the claims.

The accompanying drawings illustrate one complete example of the physical embodiment of the invention constructed according to the best mode so far devised for the practical application of the principles thereof, and in which:

FIGURE 1 is a side elevational view of the clamp of this invention illustrating the same mounted upon the transom of a boat, and showing part of the outboard motor which it serves to attach to the boat;

FIGURE 2 is an enlarged sectional view of the clamp, taken generally along the planes of the line 2—2 in FIGURE 4, showing the clamp gripping the transom of a boat;

FIGURE 3 is a view similar to FIGURE 2, but showing the clamp open;

FIGURE 4 is a front view of the clamp;

FIGURE 5 is a perspective view of one of the jaws of the clamp;

FIGURE 6 is a perspective view of the member by which the motor is connected to the clamp for swinging movement to and from its operative position; and

FIGURE 7 is a diagrammatic perspective view of the adjustable linkage by which the jaws of the clamp are opened and closed and the clamp is adjusted to different transom thicknesses.

Referring now particularly to the accompanying drawings, the numeral 10 indicates generally a conventional outboard motor mounted upon a boat transom 11 by means of the clamp of this invention, which is indicated generally by the numeral 12.

The clamp 12 comprises a pair of hingedly connected or articulated first and second jaws 13 and 14, between which the transom of the boat may be clamped, and novel means to be later described, to open and close the jaws and also adjust the same to different transom thicknesses.

The first jaw 13, as best seen in FIGURE 5, is a unitary casting having two laterally spaced sections 15 and 16, connected by a cross piece 17, and arms 18 and 19, which project substantially perpendicularly from the sections 15 and 16. The sections 15 and 16 overlie the second jaw 14 and seat upon the top of the transom when the clamp is in place thereon. The arms 18 and 19 have transom engaging faces 20 and 21 which may have raised pads 20′ and 21′ to better grip the inner face of the transom.

The second jaw 14 is a generally U-shaped casting having laterally spaced legs 22 connected at their bottom by a cross member 23. The inner faces of the legs 22 are preferably flush with that of the cross piece 23 so that the entire inner aspect of the second jaw may lie flat against the outside of the transom.

The hinged or articulated connection between the jaws is provided by a pivot 24, carried by the first jaw and a lever arm 25 rockably supported by the pivot for swinging motion about the axis thereof, and pivotally connected at its outer free end to the second jaw, as at 26. Although functionally, the lever arm 25 may be considered one unit, in practice it consists of two directly opposite arms 25 and 25′ connected together by the pivot 24 so as to swing in unison.

The mounting of the pivot 24 on the first jaw 13 enables the pivot to be moved toward or from the transom engaging face of the first jaw to thereby adjust the clamp to different transom thicknesses. To this end, the pivot mounting comprises a screw 27 freely rotatably journalled in the cross bar 17 but secured against endwise movement with respect thereto in any suitable manner, as by means of a pin 28 fixed in the cross bar and projecting into an annular groove 29 in the unthreaded shank of the screw.

Attention is directed to the fact that the screw is so mounted on the first jaw that its axis is perpendicular to the transom engaging face of the jaw, and that its threaded end overlies the second jaw. Here the screw has a nut 30 threaded on it, and this nut has the pivot pin 24 fixed to or passing through it. The nut is thus restrained against rotation so that by turning the screw for which purpose a knurled head 31 is provided the nut 30 and hence the pivot 24 may be moved toward or from the transom engaging face of the first jaw. Such shifting of the pivot 24, of course, brings the jaws closer together or farther apart, depending upon the direction in which the screw has been turned.

To tighten the clamp upon the transom, the lever arm 25—25′ must be swung clockwise about the pivot 24, as viewed in FIGURES 1, 2 and 3. This is done by pushing down on a handle 32 which is pivoted to the first jaw as at 33. The handle, or more accurately, part of its hub 34, and a link 35 connecting the hub with the lever arm 25—25′ through a lever 36 integral with the lever arm

25, together form an overcenter linkage. The pivots of this linkage are so related to one another and to the pivotal mounting 33 of the handle, that as the handle is swung down to tighten the clamp, the linkage moves across dead center.

When the clamp is open, as in FIGURE 3, its jaws are yieldingly spread apart to facilitate placement of the clamp upon a boat transom. This may be done in any suitable way, as by a torsion spring 38, the coils of which encircle the pivot 26 of one of the lever arms 25—25' and the legs of which bear respectively against the adjacent lever arm and a portion of the second jaw. Engagement of the upper outer edge of the second jaw with the underside of the sections 15—16 limits the spring produced separation of the jaws.

One of the features of this invention is that the mechanism of the clamp is housed within or at least covered by the structure of the articulated jaws and, to that end, the sections 15—16 of the first jaw have downwardly opening cavities 40 and 41, respectively, in which the upper ends of the lever arms 25—25' are received. The inner walls of these cavities are cut away, as at 40' and 41', to accommodate the pivot pin 24.

The cavity 40 in the arm 20 is larger than the other cavity 41, so as to accommodate the lever 36, the link 35 and the hub 34 of the handle; and to accommodate the handle itself, the adjacent arm 13 of the first jaw has a slot 44 formed therein, as best seen in FIGURE 4.

The motor is supported from the clamp by an arm 45 which is embraced by the sections 15 and 16 of the first jaw and is pivoted thereto preferably on the axis about which the handle swings, though obviously this is not necessary. The arm 45 has the motor solidly mounted thereon in a manner allowing it to be turned about a vertical axis. This may be done by securing a round hinge-pin 46 to the arm 45 and suitably connecting this pin to the housing of the motor.

A tiller 47 may be secured to the hinge-pin 46 or some other part of the motor, to provide means for swinging the motor about the axis of the pin 46.

Being located between the laterally spaced sections 15 and 16 of the first jaw, the arm 45 overlies the nut 30 and the screw to thus not only protect the same but improve the appearance of the unit by covering these parts.

The pivotal connection between the motor mounting arm 45 and the jaw 13, of course, allows the motor to be swung to and from operative position, as is customary, and when the clamp is detached from the transom of the boat, the hinge-pin 46, being readily accessible through the bifurcated jaws, as shown in FIGURE 4, affords a convenient handle by which the motor may be carried.

The specific manner in which the lever arms 25—25' are connected to the second jaw 14 is not too significant, but preferably the legs 22 of this jaw have pockets 48 formed in their upper inner portions to accommodate the lever arms, and one of these pockets also provides a surface against which the torsion spring 38 reacts.

From the foregoing description, taken in connection with the accompanying drawings, it will be readily apparent to those skilled in this art that this invention provides an improved clamp for mounting an outboard motor on the transom of a boat, and that it completely obviates the heretofore tedious task of drawing clamping screws down every time the motor was mounted in position, and in its stead provides an easily actuated clamp-actuating mechanism which may be readily adjusted to accommodate transoms of different thicknesses.

What is claimed as my invention is:

1. A clamp for readily detachably mounting an outboard motor on the transom of a boat, having articulated first and second jaws between which the transom of a boat may be clamped, and comprising: a pivot movably carried by the first jaw in spaced relation to its transom engaging face; a lever arm rockably supported by said pivot for swinging motion about the axis of the pivot, the lever arm being connected with the second jaw and operable upon swinging motion about the axis of the pivot to open or close the jaws depending upon the direction in which the lever arm is swung; actuating means connected to and reacting between the lever arm and the first jaw to swing the lever arm about the axis of the pivot; means on said first jaw for moving said pivot to vary the spacing between the pivot and the transom engaging face of the first jaw; means connected with and supported by one of the articulated jaws to support an outboard motor, the means for moving said pivot comprising a screw freely rotatably mounted in the first jaw; means securing the screw against axial movement with respect to the first jaw; and a nut having threaded engagement with the screw and carrying the pivot, the nut being restrained against rotation so that by turning the screw the nut and the pivot thereon will be propelled lengthwise of the screw.

2. A clamp for readily detachably mounting an outboard motor on the transom of a boat, having articulated first and second jaws between which the transom of a boat may be clamped, and comprising: a pivot movably carried by the first jaw in spaced relation to its transom engaging face; a lever arm rockably supported by said pivot for swinging motion about the axis of the pivot, the lever arm being connected with the second jaw and operable upon swinging motion about the axis of the pivot to open or close the jaws depending upon the direction in which the lever arm is swung; actuating means connected to and reacting between the lever arm and the first jaw to swing the lever arm about the axis of the pivot; means on said first jaw for moving said pivot to vary the spacing between the pivot and the transom engaging face of the first jaw; means connected with and supported by one of the articulated jaws to support an outboard motor, a part on said first jaw projecting from its transom engaging face and overlying the second jaw; the means for moving the pivot to adjust the clamp to different transom thicknesses comprising a screw freely rotatably journalled in said part of the first jaw but restrained against endwise movement with respect thereto, the axis of the screw being substantially perpendicular to the transom engaging face of the first jaw and the screw having a threaded portion thereof overlying the second jaw, and a nut threaded on said portion of the screw, the pivot being carried by the nut and the nut being restrained against rotation with respect to the screw so that by turning the screw the nut and the pivot may be propelled toward or from the transom engaging face of the first jaw.

3. The structure set forth in claim 2, further characterized by the fact that the actuating means comprises: a handle pivotally mounted on the first jaw; and a link connected to the handle at a point spaced a short distance from its pivot axis and connected to the lever at a distance from the pivot so that by rotating the handle about its pivotal mounting the lever arm may be swung about the pivot.

4. A clamp for readily detachably mounting an outboard motor on the transom of a boat, having articulated first and second jaws between which the transom of a boat may be clamped, and comprising: a pivot movably carried by the first jaw in spaced relation to its transom engaging face; a lever arm rockably supported by said pivot for swinging motion about the axis of the pivot, the lever arm being connected with the second jaw and operable upon swinging motion about the axis of the pivot to open or close the jaws depending upon the direction in which the lever arm is swung; actuating means connected to and reacting between the lever arm and the first jaw to swing the lever arm about the axis of the pivot; means on said first jaw for moving said pivot to vary the spacing between the pivot and the transom engaging face of the first jaw; means connected with and supported by one of the articulated jaws to support an outboard motor, the actuating means comprising an overcenter

linkage including a pair of pivotally connected links respectively pivotally connected to said lever and to said jaw; a handle fixed to one of the links of said overcenter linkage and by which said linkage may be operated, said first jaw having a part thereon extending from its transom engaging face and overlying the second jaw, said part having a cavity therein with its mouth opening toward the second jaw, the pivot and the overcenter linkage being located in said cavity and the lever arm projecting from the mouth of the cavity and having at its projecting end, a pivotal connection with the second jaw.

5. The structure set forth in claim 4, wherein the lever arm and its pivotal connection with the second jaw forms the articulated connection between the jaws.

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