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COUPLING DEVICE FOR TWIN OUTBOARD MOTORS

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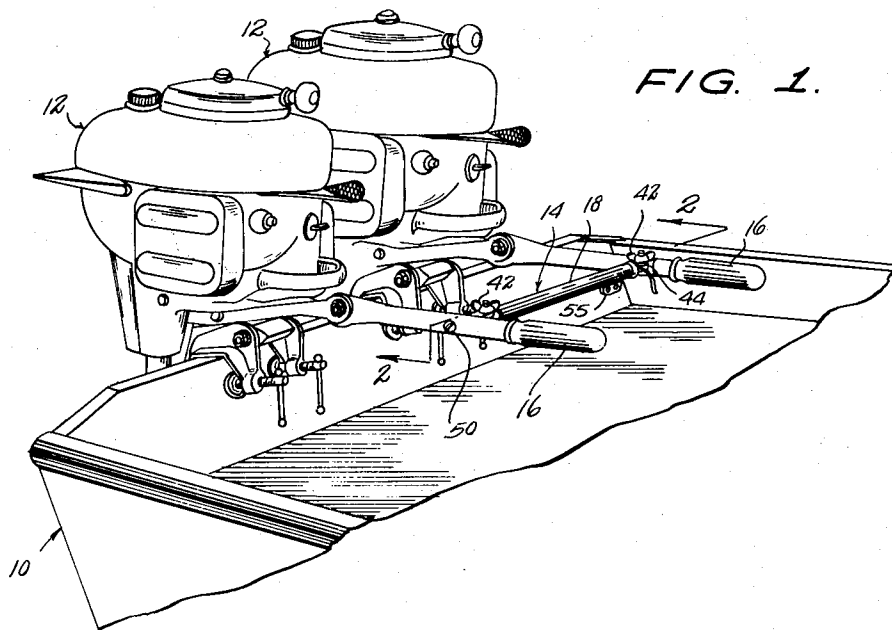


FIG. 1.

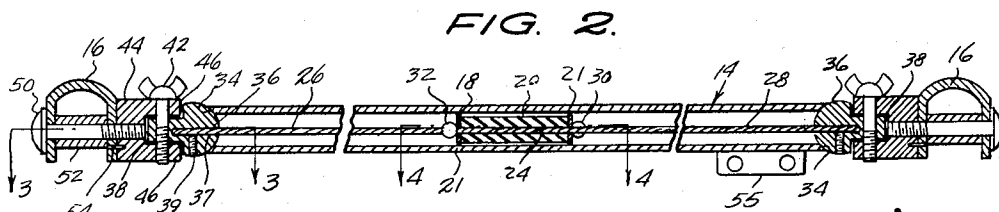


FIG. 2.

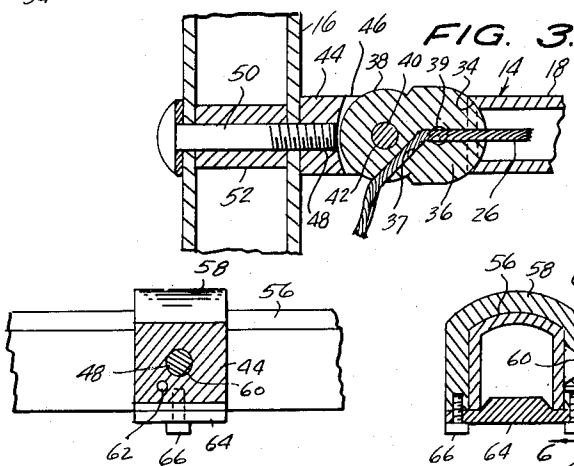


FIG. 3.

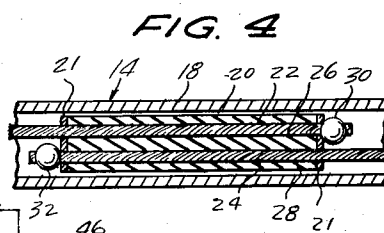


FIG. 4.

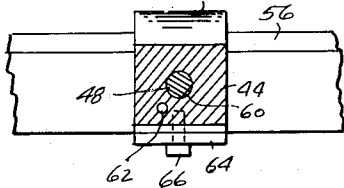


FIG. 5.

FIG. 6.

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COUPLING DEVICE FOR TWIN OUTBOARD MOTORS

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5 Claims. (Cl. 74-480)

This invention relates to a device for coupling together the handles of side by side outboard motors, to connect said handles for joint steering.

One important object of the present invention is to provide a device as described which can be separably connected to the handles of twin outboard motors, whereby to provide for joint steering of said motors, without modification or redesign of the handles or motors.

Another object of importance is to provide a device of the character referred to which will be so formed as to take into account the various movements of the outboard motor handles, such as the movement brought about by the upswing of either or both motors, the device constituting the present invention having novel designed flexible connections at its opposite ends to the outboard motor handles.

Another object of the present invention is to provide a device of the type stated wherein the flexible or universal connections at the opposite ends of the device will be linked, by a resiliently expansible means extending through the body portion of the device, in a manner which will be effective to resist yieldably pull exerted on the universal connections in a direction away from said body portion, the resiliently expansible linking means being so formed as to tend to center the universal connections in the opposite ends of the body portion.

Another object is to provide a device of the character referred to wherein the means at the opposite ends of the device for connecting the same to the outboard motor handles will be removable, thus to permit selected clamps to be employed in association therewith, said clamps to be chosen according to the make of the particular outboard motor.

Still another object of importance is to provide a coupling device as described which will be so formed as to permit either a direct gripping of the handles by a user, or attachment of a remote steering system.

A further object of importance is to provide a coupling device as described which will be capable of manufacture at a relatively low cost, and will be simple in construction, and rugged and trouble free in operation.

Still another object of importance is to provide a coupling device as described which can be attached to or detached from a pair of outboard motor handles with maximum speed and facility.

Other objects will appear from the following description, the claims appended thereto, and from the annexed drawings, in which like reference characters designate like parts throughout the several views, and wherein:

Figure 1 is a perspective view of a coupling device formed in accordance with the present invention as it appears when in use, a pair of outboard motors connected thereby for joint steering being shown in perspective and a boat on which the motors are mounted being illustrated fragmentarily and in perspective;

Figure 2 is an enlarged longitudinal sectional view taken substantially on line 2-2 of Figure 1;

Figure 3 is a detail sectional view, the scale being

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enlarged still further, taken substantially on line 3-3 of Figure 2, showing the means at one end of the device for coupling the same to an outboard motor handle;

Figure 4 is a detail sectional view, the scale being enlarged above that of Figure 2, showing the resiliently compressible block provided within the device;

Figure 5 is a fragmentary longitudinal sectional view through one end of a modified form; and

Figure 6 is a transverse sectional view taken on line 6-6 of Figure 5.

Referring to the drawings in detail, the reference numeral 10 has been applied generally to a conventional boat, on which are mounted, in side by side relation, a pair of twin outboard motors of conventional construction, said motors being designated generally by the reference numeral 12.

The coupling device constituting the present invention has been designated generally at 14, and is adapted to join the handles 16 of the motors for joint steering.

Considering the construction of the device per se, the form illustrated in Figures 1 to 4 inclusive will first be described. In this form of the invention, there is provided an elongated, tubular, open ended body 18 proportioned to extend for substantially the full distance between the handles 16 of the outboard motors to define a link or connecting piece between the handles 16.

As best shown in Figures 2 and 4, I provide, medially between the opposite ends of the body 18, a resiliently compressible block 20. The block 20 can be formed of a soft rubber material or of any other material which will permit the block to be compressed longitudinally. In this connection, the block is of cylindrical, relatively elongated formation, and is positioned loosely within the body 18, with the side wall of the body spaced distinctly from the adjacent side surface of the block, thus to prevent the body from interfering with compression of the block 20, it being understood that such compression would naturally tend to thicken the block transversely whenever it occurs.

At its opposite ends, the block 20 is provided with wear plates 21 of metal material or of any other material having the desired characteristics of hardness thus to prevent wearing of the opposite end portions of the block.

Formed in the block 20 are parallel, longitudinal bores 22, 24, said bores opening upon the opposite ends of the block through apertures formed in the wear plates 21. A flexible element 26 has one end extended through the bore 22, and a second flexible element 28 has one end extended through the other bore 24. The element 26, as will be noted from Figure 4, projects beyond opposite ends of its associated bore 22, and is provided with an enlargement 30 engaging against one wear plate 21, the element 28 having an enlargement 32 engaging against the other wear plate 21.

The elements 26, 28 extend in opposite directions from the block 20 toward the respective ends of the body 18, and it will thus be apparent that if pull is exerted upon either or both of the flexible elements, in a direction away from the body 20, said body will be compressed longitudinally and will set up a force opposing said pull.

As best shown in Figures 2 and 3, the respective ends of the body 18 are beveled as at 34, complementarily to the spherical surface of ball members 36 seated in said ends. The ball members 36 are universally movable upon their seats, and are provided with center bores receiving the respective elements 26, 28, said center bores of the ball members having angular extensions 37.

Formed upon each of the ball members 36 is a circular tongue 38, said tongue being of flat configuration and projecting in a direction away from the end of the body

adjacent thereto. The tongue 38 has center openings 40, said openings being of smooth walled formation and receiving the shanks of thumb screws 42. The thumb screws 42 extend through connecting elements 44, which elements are bifurcated at one end, as shown at 46, to receive the tongues 38, the fork arms defined by bifurcation of the connection elements having openings registering with the opening 40 of each tongue 38. One of the openings of the fork arms is threaded for engagement with the thumb screw 42, and it will thus be seen that the connecting elements 44 are separably connected to the ball members 36, and can be considered as being connected to the ball members for pivotal movement relative to the ball members, about an axis transversely disposed relative to the longitudinal axis of the body 18.

Formed in each connecting element 44 is an axial passage 48, aligned with the axis or longitudinal center line of the body 18, the passage 48 being internally threaded for engagement with the threads of a clamping bolt 50. The clamping bolt 50 is extendable through transversely aligned openings formed in its associated outboard motor handle 16, a spacer sleeve 52 being circumposed about the bolt within the handle. An anti-twist pin 54 is employed as a dowel between the handle 16 and the connecting element 44, in spaced relation to the clamping bolt, and prevents pivotal movement of the handle relative to its associated connecting element about an axis defined by the clamping bolt.

It will be understood that all of the parts of the device so far illustrated and described would be so formed as to be proof against rust and corrosion.

On the body 18, adjacent one end thereof, I provide a tab or ear 55, having spaced apertures, said tab or ear being fixedly connected to the side wall of the body and being adapted to permit connection of remote steering cables, not shown, to said body, thus to provide for remote steering of the coupled outboard motors if desired.

In Figures 5 and 6 I have illustrated a modified form, adapted particularly for coupling together outboard motors of the type wherein the handles of the motors have the throttle rods extending therethrough. When motors of this type are to be coupled together for joint steering, the use of the clamping bolt 50 and spacer sleeve 52 would not be possible, since these parts would interfere with and extend across the path of the throttle rods.

Accordingly, the handle 56 of the outboard motor, in the modified form of the invention, is straddled by a clamping element 58 of inverted U shape, said element having, in one leg thereof, a countersunk opening receiving the head of a clamping bolt 60. The clamping bolt 60 is threadable into the axial passage 48 of the connecting element illustrated in the first form of the invention, and an anti-twist pin 62 is extended between the clamping element 58 and connecting element 44.

A bottom plate 64 underlies the handle 56, and is apertured at its respective ends to receive screws 66 threadable into the respective legs of the clamping element 58.

As will be seen, the construction illustrated in Figures 5 and 6 permits the device to be associated with outboard motor handles or steering arms of the type having throttle rods extending therethrough.

Apart from the means employed for connecting the handles to the elements 44, the modified form of the invention illustrated in Figures 5 and 6 is similar in all respects to the first form.

I believe it will be readily apparent that the device constituting the present invention can be manufactured at a relatively low cost, and can be attached to or detached from adjacent outboard motor steering arms or handles with maximum speed and ease. In this connection, once the handles are coupled together in the manner illustrated in Figure 1, the twin outboard motors 12 will be steerable as a single unit.

It is thought to be an important characteristic of the

invention, in this regard, that the means whereby the device is coupled at its opposite ends to the steering arms of the outboard motors is so designed as to take into account the various movements of said handles, such as the movement thereof brought about by the upswing of either or both motors. To this end, said means is in the nature of a universal connection at each end of the body 18, and it is considered to be important that the universal connection is such as to normally remain centered relative to the axis of the body 18. The centering of the universal connections is achieved by the resiliently expandible means linking the ball members 36, said resiliently expandible means comprising the flexible elements 26, 28, and their associated compressible block 20. The block 20 resists pull exerted outwardly of the body 18 by the ball members, and tends to hold the ball members seated while at the same time centering said ball members within the ends of the body.

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 claims.

What is claimed is:

1. A device for coupling together the handles of side by side outboard motors to provide for joint steering thereof, comprising: an elongated, tubular, open ended body extendable between said handles; ball members seated in and closing the body at its opposite ends and movable universally relative to the body; resiliently expandible means extending within the body and operatively connected to the respective ball members to hold the same in engagement with the ends of the body associated therewith; and means for connecting the ball members to said handles.

2. A device for coupling together the handles of side by side outboard motors to provide for joint steering thereof, comprising: an elongated, tubular, open ended body extendable between said handles; ball members seated in and closing the body at its opposite ends and movable universally relative to the body; a resiliently compressible block disposed within the body intermediate the opposite ends thereof; a flexible element connected at one end to the center of one of the ball members and extending through the block, said element being engaged with that end of the block remote from said one ball member; a second flexible element connected to the center of the other ball member and extending through said block, said second flexible element being engaged at its other end with the other end of the block, to resiliently compress the block responsive to pull exerted on either flexible element by its associated ball member in a direction away from the body and thereby set up a force opposing said pull and tending to center the ball elements in their associated ends of the body; and means for connecting the ball members to said handles.

3. A device for coupling together the handles of side by side outboard motors to provide for joint steering thereof, comprising: an elongated, tubular, open ended body extendable between said handles; ball members seated in and closing the body at its opposite ends and movable universally relative to the body; a resiliently compressible block disposed within the body intermediate the opposite ends thereof; a flexible element connected at one end to the center of one of the ball members and extending through the block, said element being engaged with that end of the block remote from said one ball member; a second flexible element connected to the center of the other ball member and extending through said block,

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said second flexible element being engaged at its other end with the other end of the block, to resiliently compress the block responsive to pull exerted on either flexible element by its associated ball member in a direction away from the body and thereby set up a force opposing said pull and tending to center the ball elements in their associated ends of the body; and means for connecting the ball members to said handles, said means including tongues on the ball members projecting in a direction away from the body, and bifurcated connecting elements attached to the tongues and adapted for connection to said handles.

4. A device for coupling together the handles of side by side outboard motors to provide for joint steering thereof, said device comprising a hollow body defining a link between said handles, a pair of universal joints with one joint disposed at each end of said body and coupled to the adjacent handle, and resilient means within said body disposed intermediate the ends thereof and operatively connected to each of said joints to resiliently urge said joints toward said resilient means and into operative engagement with the adjacent end of said body.

5. A device for coupling together the handles of side by side outboard motors to provide for joint steering thereof, said device comprising a hollow body extending between said handles to define a link, resilient means positioned within said body intermediate the ends thereof, a pair of universal joints with one joint disposed at an opposite end of said body, means operatively connecting said universal joints to said block, clamp means carried by each

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of said universal joints and operatively engageable with an adjacent handle to couple the joint thereto, said block being resiliently compressed in response to movement of the means operatively connecting said block and said universal joint caused by the movement of one of said handles to set up a resilient force urging the other of said joints through the means operatively connecting to said block to move in the same direction and thereby cause movement of the other of said handles secured to the other of said universal joints in said direction.

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