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[54] **TRIM TAB MEANS FOR MARINE CRAFT**  
**1 Claim, 7 Drawing Figs.**

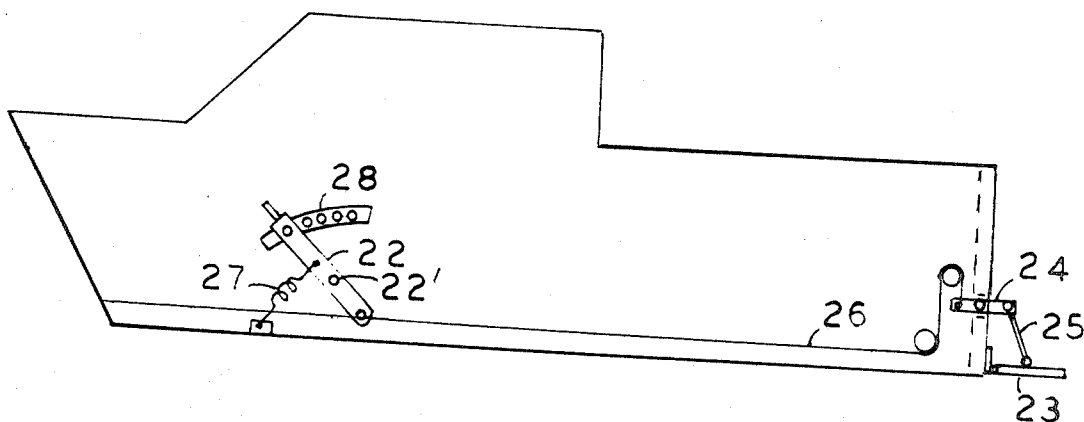
[52] U.S. Cl..... **114/66.5 P**  
 [51] Int. Cl..... **B63b 1/22**  
 [50] Field of Search..... **114/66.5 P**

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**ABSTRACT:** A pair of trim tabs are pivotally connected to the transom of a craft adjacent the water line. The angle of the trim tabs is adjusted by a linkage comprising a rigid member connected to a handle-operated screw member with a universal joint. A modification of the invention shows the control handle means mounted inside the craft.



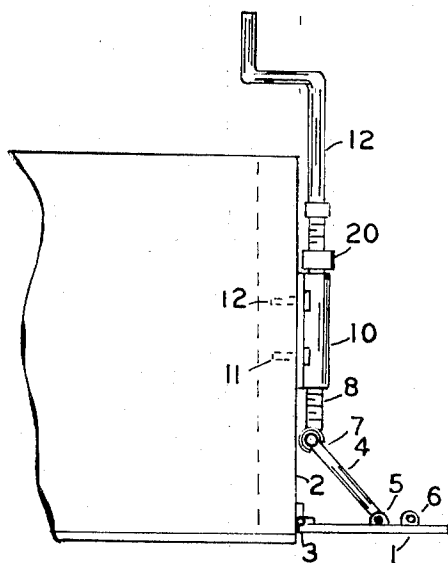


FIG 1

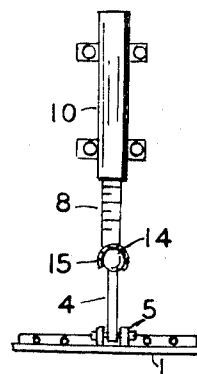


FIG 2

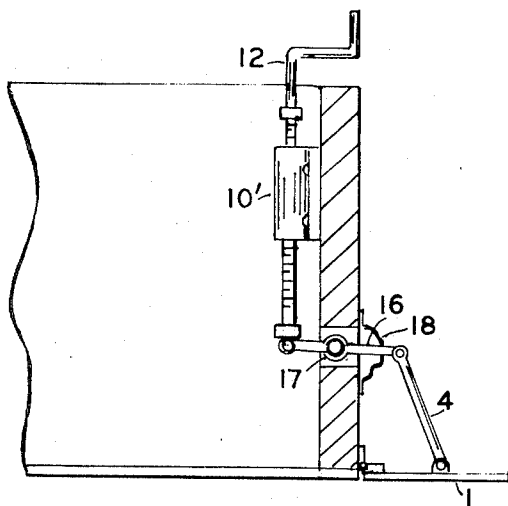


FIG 3

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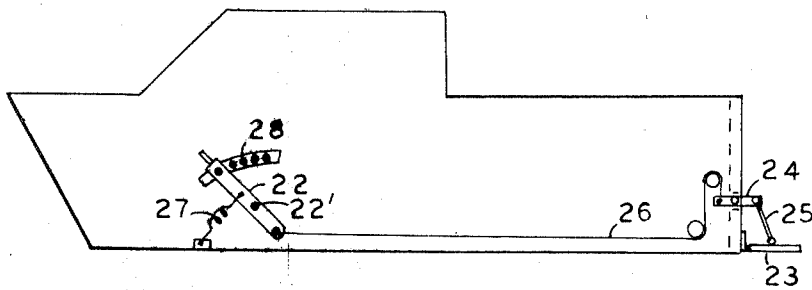


FIG 4

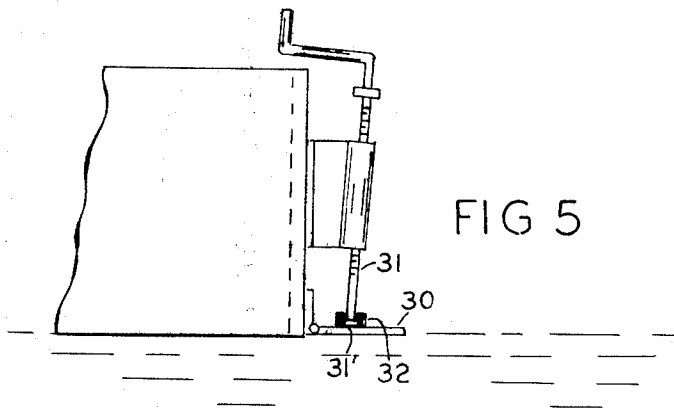


FIG 5

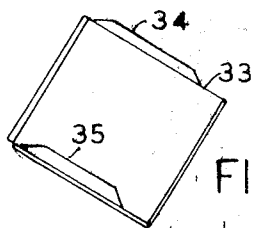


FIG 6

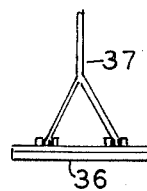


FIG 7

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# TRIM TAB MEANS FOR MARINE CRAFT

Trim tabs are commonly used for boats and yachts for adjusting the trim of the boat. When the trim of the craft is properly adjusted, the speed is increased, fuel consumption is decreased, the ride is smoother, and there is less load on the engines. Also, listing of the boat may be adjusted and hull stress is reduced.

Trim tabs of the prior art are generally adjusted by power systems such as electrical or pneumatic devices which are complicated, expensive and which are a source of potential trouble if they malfunction, which might even endanger the safety of the craft under certain conditions.

The present invention provides a manual control system which is easily adjusted, which has a minimum of parts, and a minimum potential for malfunctioning parts.

Accordingly, a principal object of the invention is to provide new and improved trim tab means for marine craft.

Another object of the invention is to provide new and improved trim tab means for marine craft having a minimum number of parts and eliminating all motorized or power controls.

Another object of the invention is to provide new and improved trim tab means for marine craft, comprising a tab member pivotally mounted on the transom of a marine craft adjacent to the water level, a rigid elongated member pivotally connected to said tab member at its lower end, a universal connection connected to the upper end of said rigid member, an externally threaded member connected to said universal connection at its lower end, an internally threaded mounting member connected to the frame of said marine craft, said externally threaded member being mounted inside said internally threaded member with threads of the two members engaged, a handle connected to said externally threaded member, the shaft of said handle being long enough to permit rotation of said handle over the top of the transom of said craft.

These and other objects of the invention will be apparent from the following specification and drawings, of which:

FIG. 1 is a side view of an embodiment of the invention.

FIG. 2 is a detail view of an embodiment of FIG. 1.

FIGS. 3, 4 and 5 are side views of modifications of the invention.

FIGS. 6 and 7 are detail views of modifications of the invention.

Referring to the figures, the invention generally comprises a trim tab 1, which is pivotally mounted to the transom 2 of the craft by means of a hinge 3. A rigid link member 4 is pivotally connected to the tab by means of the pin connection 5 at its lower end. If desired, additional mountings 6 may be provided on the tab to vary the amount of tab motion. The upper end of the member 4 is connected to a universal or ball and socket joint 7. A large externally threaded member 8 is connected at its lower end to the universal joint 7 and the member 8 is mounted in an internally threaded mounting member 10 which is fastened to the transom of a craft with screws or bolts 11, 12.

A handle 12 is connected to the upper end of the screw member 8 and the threads of the members 8 and 10 are engaged so that when the handle is rotated, the screw member 8 moves vertically in the mounting member 10, thereby causing the tab 1 to rotate about its hinge mounting member 10, thereby causing the tab 1 to rotate about its hinge mounting 3. The handle may be removably connected to the member 8 by means of a socket connection so that the handle can be removed once the adjustment is made. The shaft of the handle member must be long enough to extend over the top of the transom in all positions of the member 8 so that the handle is freely rotatable.

Once the tab adjustment is made, the position of the member 8 will be maintained by the frictional contact of the threads, or if desired, a locking clamp may be mounted on the

member 10. All of these members are preferably made out of a noncorrosive material such as stainless steel and the screw member should be periodically lubricated to prevent sticking due to possible corrosion.

FIG. 2 shows a detail view illustrating a ball-and-socket joint comprising a ball member 14 mounted on the upper end of the rod 4 in a corresponding socket member 15 mounted at the lower end of the screw member 8.

FIG. 3 shows a modification of the invention with the screw member mounted inside the craft. This modification is similar to the embodiment of FIG. 1, except for the addition of a lever 16, which extends through the transom 2 and is mounted in a pivot 17, which is mounted in the plane of the transom. The pivot connection must be watertight and is preferably covered with a waterproof flexible boot cover 18.

The operation of this modification is similar to that previously described, except that it has the added convenience that the adjustment may be made from inside the craft, and the screw mechanism is more protected.

The embodiment of FIG. 3 shows the mounting on the inside of the transom. However, the lever 16 may be made longer inside the craft to provide a greater mechanical advantage. In this case, the member 10' would preferably be mounted on extending brackets mounted to the transom or wall, or otherwise mounted to the frame of the craft. Various other modifications of the linkage may be used. The internally threaded mounting means may comprise two or more pieces mounted on the transom and spaced apart.

The screw mechanism provides sufficient mechanical advantage so that the adjustments may be made while the craft is operating at full speed, without the necessity for any motors or power assists.

FIG. 4 illustrates another embodiment of the invention having a remote control handle 22. In this embodiment, the tab 23 is connected to a lever 24 in the transom by means of the rod member 25. The other end of the lever is connected by a cable 26 to control handle 22, which is pivotally connected to the frame of the boat at the point 22'. The handle is preferably spring loaded by means of the spring 27 and preferably has a plurality of holding positions on a bracket 28 so that the tab 23 may be set in a plurality of positions.

FIG. 5 shows another embodiment of the invention wherein the tab 30 is directly controlled by the screw member 31 by means of a head 31' on the lower end of the screw member 31, which rides inside a universal joint 32. The universal joint is provided to accommodate the axial movement of the screw and the movement of the tab 30 about an arc.

FIG. 6 shows a detail view of a tab member 33 having a pair of side upwardly extending walls 34 and 35. The purpose of the walls is to provide strength to the tab member and to also act as rudders to prevent vibrating or oscillation of the tab member.

FIG. 7 shows an alternative means for making a connection to a tab member 36 wherein the connecting member 37 is in the form of an inverted Y. This type connection is preferable for larger size tabs to distribute the force equally to both sides of the tab.

I claim:

1. Trim tab means for marine craft comprising,
  - a tab member pivotally mounted on the transom of a marine craft adjacent to the water level,
  - a rigid elongated member pivotally connected to said tab member at its lower end,
  - a pivot connection connected to the upper end of said rigid member,
  - a linkage member pivotally mounted on and extending through said transom, said linkage member connected to said rigid member, a control handle mounted on the frame of said craft and a cable connecting said linkage member with said control handle.

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