June 23, 1925. 1,543,082

B. G. HARLEY

BOAT CONTROL DEVICE

Filed March 31, 1923

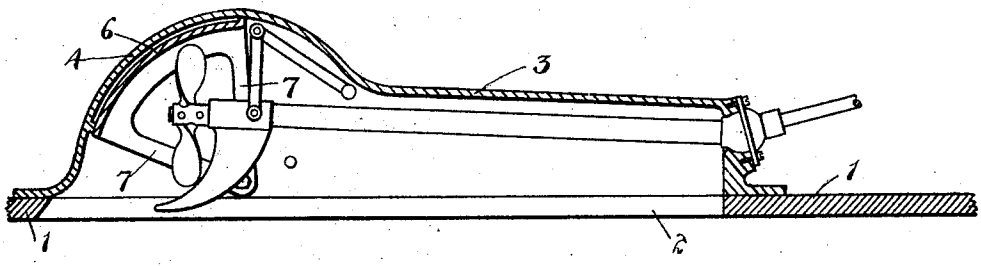


Fig. 1.

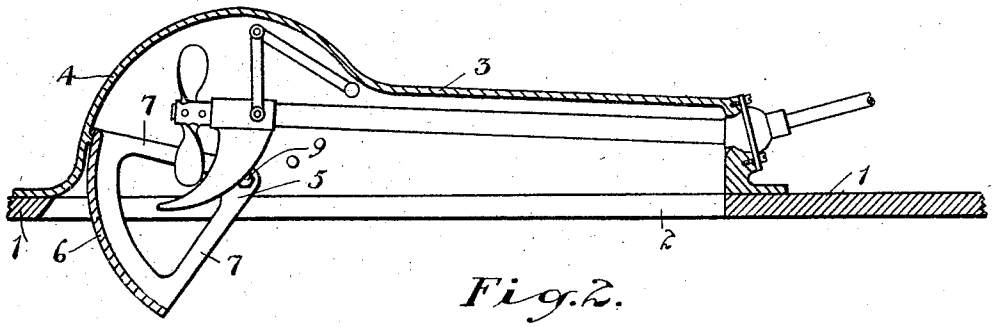


Fig. 2.

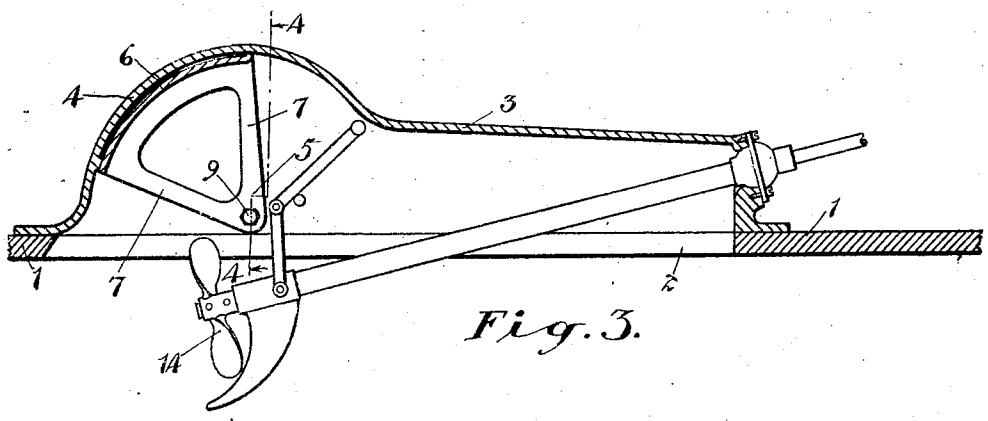


Fig. 3.

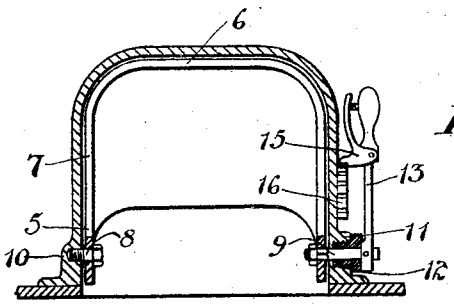


Fig. 4.

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UNITED STATES PATENT OFFICE.

BERTRON G. HARLEY, OF NORTH TONAWANDA, NEW YORK, ASSIGNOR TO ALBERT L. ELLSWORTH, OF TORONTO, CANADA.

BOAT-CONTROL DEVICE.

Application filed March 31, 1923. Serial No. 629,084.

To all whom it may concern:

Be it known that I, BERTRON G. HARLEY, a citizen of the United States of America, and resident of North Tonawanda, in the State of New York, in the United States of America, have invented certain new and useful Improvements in a Boat-Control Device, described in the following specification, and illustrated in the accompanying drawings, that form part of the same.

The principal objects of the invention are, to facilitate the handling of power driven boats, enabling the effective checking of the headway and the reversing of the movement of the boat without the necessity of providing "reverse" devices in the propelling mechanism, thereby eliminating the harmful stresses incident to reversing and effecting a material reduction in the cost of the mechanical equipment of the boat.

The principal feature of the invention consists in providing a member adapted to be lowered from the hull of the boat to project into the water and form an effective brake and to intercept the backward flow of water from the propeller and direct it forwardly to create a backward movement of the boat.

In the drawings, Figure 1 is a longitudinal sectional view of a portion of a boat hull showing the braking device and the propeller in the raised position.

Figure 2 is a similar sectional view showing the braking device lowered with the propeller shown in the position to effect the reversing of the boat.

Figure 3 is a similar sectional view showing the braking member in the raised position and the propeller lowered for normal forward propulsion.

Figure 4 is a transverse sectional view on the line 4—4 of Figure 3 looking toward the rear.

It is well known that in the handling of boats the propelling mechanism and the hull structure are subject to undesirable stresses in the checking of the forward speed by the reverse operation of the propeller. Further, in very small boats where the minimum power plant is used, reversing mechanisms are not installed owing to the expense involved.

The present invention is applicable to various sizes and types of boats in accomplishing the checking of the speed and the reversal of movement of the boat.

In the form of the invention herein illustrated the bottom 1 of the hull of the boat is formed with an opening 2 and a casing 3 open at the bottom closes the opening.

The rearward end of the casing 3 is preferably formed with an arc-shaped portion 4. Extending between the side walls and within the casing is arranged a member 5 comprising an arc-shaped plate 6 having side arms 7 which are provided with journal extensions 8 and 9. The journal extension 8 extends into a closed journal 10 arranged in one side of the casing 3 and the extension 9 extends through a journal 11 which is provided with a suitable stuffing box 12.

A suitable control lever 13 is secured to the end of the extension 9 to swing the member 5 downwardly or upwardly.

The propeller 14 is here shown as having a flexible connection with the engine shaft and is housed within the casing 3 and is adapted to be raised or lowered, but such an arrangement of the propeller is not essential to the operation of my braking and reversing device.

The control lever 13 is shown provided with a suitable latch 15 operating in conjunction with a notched quadrant 16 to hold the plate 6 in any desired position.

In operating this device the member 5 is retained in its raised position when the boat is moving forward but when it is desired to check the speed of the boat the member 5 is swung upon its pivot to project below the bottom of the hull so that the transverse plate 6 is brought into engagement with the water, thus providing a direct brake upon the speed. This braking effect may be regulated very accurately according to the depth to which the member 6 is projected into the water below the hull.

The member 6 is preferably formed arc-shaped to present the most effective gripping contact with the water but principally to cooperate with the propeller in accomplishing the reversing of the boat.

The back wall 4 of the casing 3 is preferably arc-shaped to correspond with the arc shape of the plate 6 and practically forms a continuation of the plate 6 when said plate is lowered.

When the plate 6 is lowered it curves

downwardly and forwardly, projecting below the propeller which is preferably moved to the raised position shown when the boat is to be reversed. The operation of the propeller drives the water rearwardly into contact with the arc-shaped casing 3 and the plate 6 and the flow of the water is directed downwardly and forwardly. This forward flow of water causes the boat to move backward, thus the backing of the boat may be accomplished without the necessity of a clutch and a reversing gear on the engine shaft and as the checking of the speed of the boat is effectively accomplished by the member 6 the boat may be handled very positively.

A device such as described is of such a simple nature that it lends itself very readily to use in small launches but it must be understood that the principle here shown may be adapted to quite large vessels, being merely a matter of evolving the proper design and proportions.

What I claim as my invention is:—

1. A boat control device, comprising, the combination with a hull having an arched recess in its bottom, a plate curved to correspond to the curvature of said recess and having forwardly extending side members pivotally supported in the sides of the recess, and means for swinging said members on their pivots to move said plate downwardly to project into the water below the hull and to lift it clear.

2. In a boat control device, a boat having a recess in its bottom formed with a rearwardly curving arch and substantially parallel sides, a member housed in said recess and having arms arranged parallel with the sides thereof, and means extending through the side of the recess for operating said member to project it into the water below the hull and to return it into the recess.

3. In a boat control device, a boat having a recess in its bottom formed with a rearwardly curving arch, a propeller adapted to be raised and lowered in said recess, a member adapted to be lowered from the hull of the boat back of the propeller and curved to form a forward extension of the rearwardly curved arch to divert the backward flow of water from the propeller in a forward direction.

BERTRON G. HARLEY.