March 22, 1932. J. W. HARVEY 1,850,669

TILTING RUDDER CONSTRUCTION

Filed Sept. 4, 1931

Fig. 1.

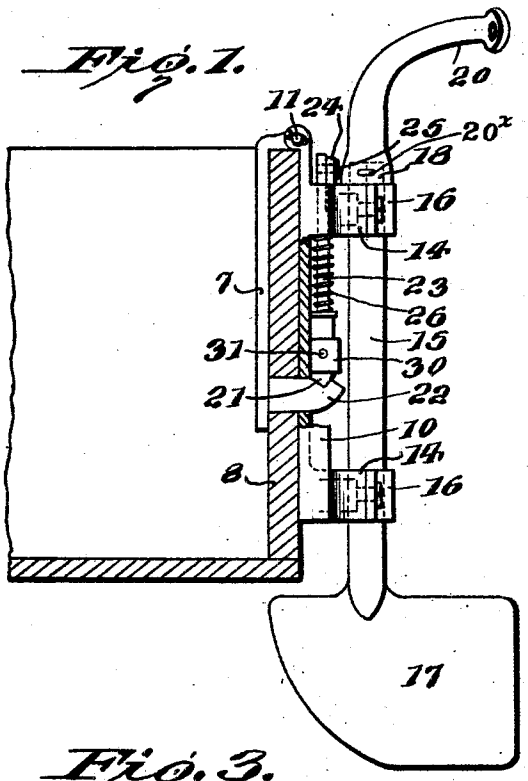



Fig. 2.

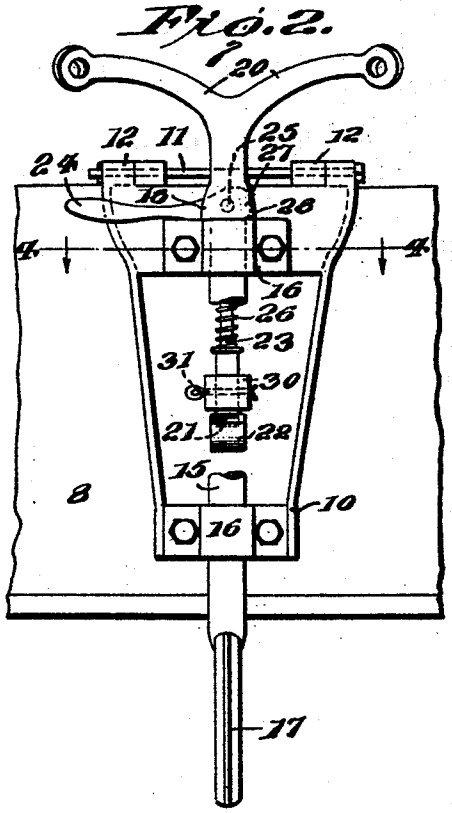
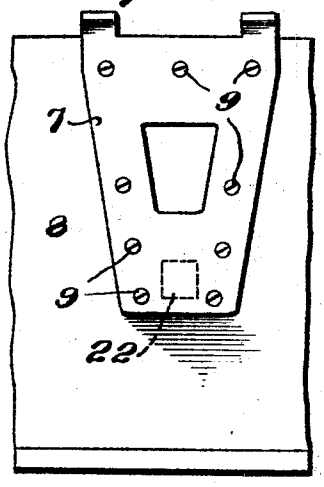



Fig. 3.



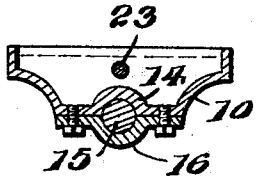




Fig. 4.

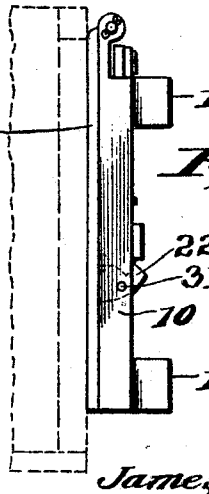



Fig. 5.

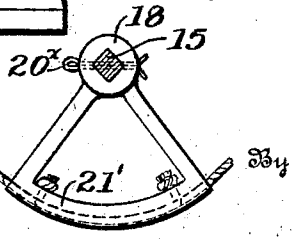



Fig. 6.

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Patented Mar. 22, 1932 1,850,669

# UNITED STATES PATENT OFFICE

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## TILTING RUDDER CONSTRUCTION

Application filed September 4, 1931. Serial No. 561,101.

My invention relates particularly to rudders for boats.

One object is to provide a simple but rugged construction which can be readily installed.

Another object is to provide a construction which will be automatically retracted in case the rudder strikes an obstruction.

Another object is to provide a construction which can be tilted up out of the way by hand when beaching a boat.

In its preferred form the construction embodies an anchorage plate adapted to be secured to the transom of a small boat and to which is hinged a bracket which carries the rudder. This bracket is suitably held in its normal steering position either by means of a readily breakable pin or wire or by a latch which can be actuated by hand or automatically.

Fig. 1 is a side view and section showing the construction embodying one form of my invention.

Fig. 2 is a rear view of the construction.

Fig. 3 is a front view of the anchorage plate.

Fig. 4 is a transverse sectional view.

Fig. 5 is a side view of the anchorage plate and bracket of a modified form of construction, the rudder being omitted.

Fig. 6 is a detail of a modified form of device for attaching the steering or tiller ropes.

The plate 7 is adapted to be secured to the transom 8 of the boat by means of screws or rivets 9 and serves as an anchorage for the entire attachment. The bracket 10 is hinged on the pin 11 which is supported by the knuckles 12 on the back plate 7.

The bracket or outside hinge plate 10 may be formed for instance of cast-metal and provided with bearings 14 at the upper and lower ends for the rudder post 15. Bearing boxes or cap plates 16 may serve to hold the rudder post or shaft detachably in place. The rudder 17 may be of any suitable design and size. The upper end of the post is provided with a shoulder 18 which rests on the upper bearing so as to support the weight of the rudder. Any suitable form of tiller arm or arms may be provided such as the forked arms 20 which project rearwardly so as to leave an abundance of clearance for the tilting of the rudder shaft or post.

I have shown the spring pressed latch bolt 21 for holding the rubber in its normal steering position. The lower end of this latch bolt engages a stud 22 which projects rearwardly through the transom 8 and through the outside hinge plate 10. The shank 23 of the latch bolt passes through the upper bearing member 16 behind the rubber shaft and has a latch release lever 24 hinged at 25 to it. The spring 26 presses the latch bolt normally downward into engagement with the stud 22.

The shape of the lower end of the latch bolt of the recess in the stud 22 is such as to normally hold the parts in position but to permit the latch bolt to be automatically disengaged in case the rudder strikes an obstruction in which event the latch bolt yields against the spring 26 and allows its escape from the holding stud 22.

The lever 24 is provided with an extension shoulder 27 for engaging the abutment 28 so that by tilting the lever 24 upwardly the extension 27 would engage the abutment 28 and thus lift the hinge pin 25 and the shank 23 of the latch bolt and retract the latch and permit the rudder to be tilted by hand.

The hinge plate may be provided with a guide 30 for the latch bolt 21. If desired the spring 26 can be omitted and a frangible pin 31 inserted through the head of the latch bolt to hold it in place.

In case the rudder should strike an obstruction the inclined tip of the latch bolt 21 would force the latch bolt upwardly and shear the pin and allow the rudder to tilt. Other forms of shear pins might be substituted within the spirit of my invention.

In Fig. 5 the anchorage plate 7′ is designed to be secured to the outside of the transom instead of to the inside. This construction is simpler to install but does not have the same advantage of strength as the construction shown in Fig. 1.

The rear plate 10 may be held in place by a shear pin 31ˣ extending through the stud 22 on the anchorage plate (Fig. 5).

The upper part 20 of the shaft 15 may be

made separate and held in place by a pin 20× through the squared and tapered upper end of the shaft. A quadrant 21′ as shown in Fig. 6 may be employed for the attachment of the tiller rope in place of the arms 20.

I claim:

1. A tilting rudder construction for a boat comprising an inner hinge plate adapted to be secured to the inside of the transom of a boat, an outer hinge plate hinged to the top of the inner hinge plate and adapted to rest against the rear face of the transom, readily detachable means of connection between said hinge plates to hold them in normal running position, and a rudder pivotally supported by the outer hinge plate.

2. A tilting rudder construction for a boat comprising an inner hinge plate adapted to be secured to the inside of the transom of a boat, an outer hinge plate hinged to the top of the inner hinge plate and adapted to rest against the rear face of the transom, a rudder pivotally supported by the outer hinge plate, and a stud projecting from one plate through the transom and into the other plate for holding the outer plate yieldingly in position.

3. A tilting rudder construction for a boat comprising an inner hinge plate adapted to be secured to the inside of the transom of a boat, an outer hinge plate hinged to the top of the inner hinge plate and adapted to rest against the rear face of the transom, a rudder and shaft pivotally supported by the outer hinge plate, upper and lower bearings on the outer plate for holding the rudder shaft to the outer hinge plate, said rudder and shaft being supported vertically by the upper bearing, and readily detachable means of connection between said hinge plates to hold the rudder in normal running position.

4. A tilting rudder construction for a boat comprising a front hinge plate adapted to be secured to the transom of a boat, a rear hinge plate hinged to the upper edge of the front hinge plate, one plate having a projecting stud and the other plate having a recess for said stud, means carried by the two plates to yieldingly hold the rear plate in position, a bearing carried by the rear plate below the axis of the hinge, a rudder post pivotally supported by said bearing, and a rope attaching member detachably mounted on the upper end of the rudder post and supported on said bearing.

5. A tilting rudder construction for a boat comprising a front hinge plate adapted to be secured to the transom of a boat, a rear hinge plate hinged to the upper edge of the front hinge plate, said rear plate being provided with a recess and the front plate having a stud adapted to project into said recess, means carried by the rear plate and coacting with said stud to hold the rear plate yieldingly in position, an upper bearing carried by said rear plate below the axis of the hinge, a lower bearing carried by said rear plate below said stud, and a rudder post pivotally supported in said bearings.

6. A tilting rudder construction for a boat comprising a front hinge plate adapted to be secured to the transom of a boat, a rear hinge plate hinged to the upper edge of the front hinge plate, one plate having a stud projecting toward the other plate, means carried by the other plate and coacting with said stud to hold the rear plate yieldingly in position, an upper bearing carried by said rear plate below the axis of the hinge, a lower bearing carried by said rear plate below said stud, and a rudder pivotally supported in said bearings and having its weight supported by the upper bearing.

7. A tilting rudder construction comprising a front hinge plate adapted to be secured to the transom of a boat, a rear hinge plate hinged to the upper edge of the front hinge plate, the front hinge plate having a stud projecting at least part way into the rear hinge plate, a shear pin extending through said stud in front of a part of the rear hinge plate, upper and lower bearings carried by the rear plate, a rudder having a post pivotally supported by the bearings in the rear hinge plate, and a rope attaching member detachably connected to the upper end of said post and supported by the upper bearing.

8. A tilting rudder construction comprising a front hinge plate adapted to be secured to the transom of a boat, a rear hinge plate hinged to the upper edge of the front hinge plate, one hinge plate having a stud projecting at least part way through the other hinge plate, a shear pin extending through said stud and a part of the other hinge plate, an upper bearing carried by the rear plate below the axis of the hinge and above said stud, and a rudder having a post pivotally and removably supported by said bearing on the rear hinge plate.

JAMES WILLARD HARVEY.