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Hackett

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[54] **RUDDER CONSTRUCTION FOR SAILBOATS**

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[52] **U.S. Cl.** **114/162,** 114/167

[51] **Int. Cl.** **B63h 25/06**

[58] **Field of Search** ..... 114/39, 127, 128, 114/130, 131, 132, 133, 136, 137, 138, 139, 144 R, 162, 164, 167

[56] **References Cited**

UNITED STATES PATENTS

2,991,749	7/1961	Patterson	114/132
3,269,347	8/1966	Koenig	114/162

FOREIGN PATENTS OR APPLICATIONS

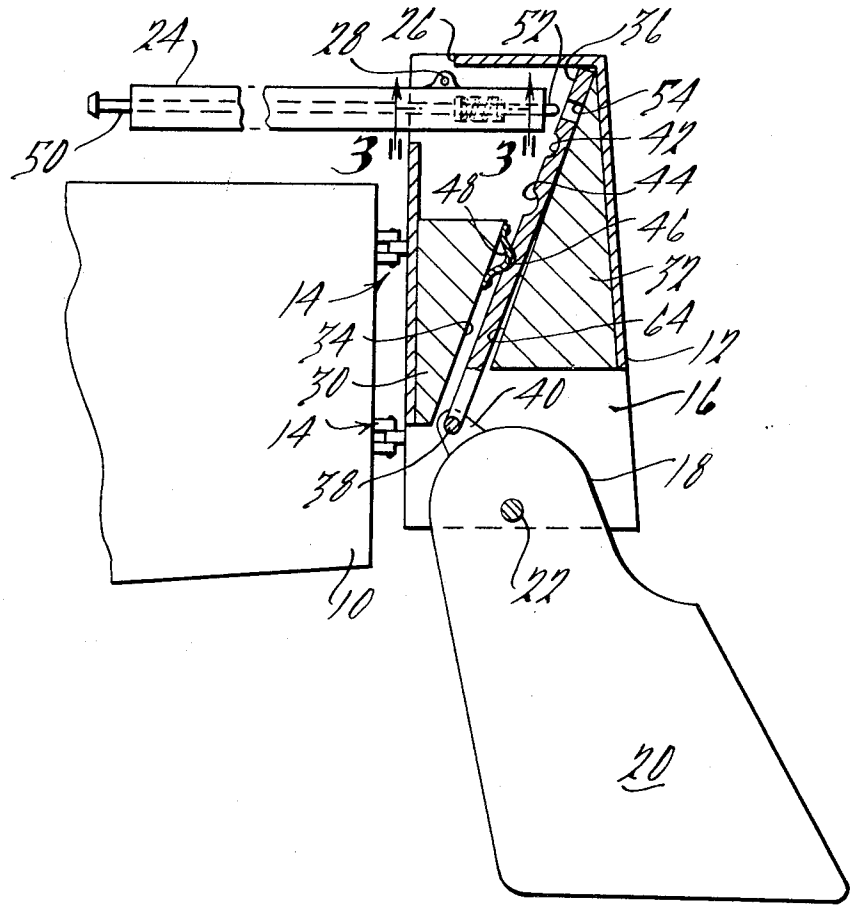
2,576	7/1874	Great Britain	114/167

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[57] **ABSTRACT**

A rudder construction for small boats, particularly sailboats, in which the rudder is mounted on its rotatable support frame for pivotal movement on a horizontal axis to prevent damage to the rudder in the event that it strikes an obstruction in the water. A detent means yieldably retains the rudder in its normal vertical position or a horizontal or intermediate position. The tiller may be manipulated to move the rudder to any of said positions.

5 Claims, 3 Drawing Figures



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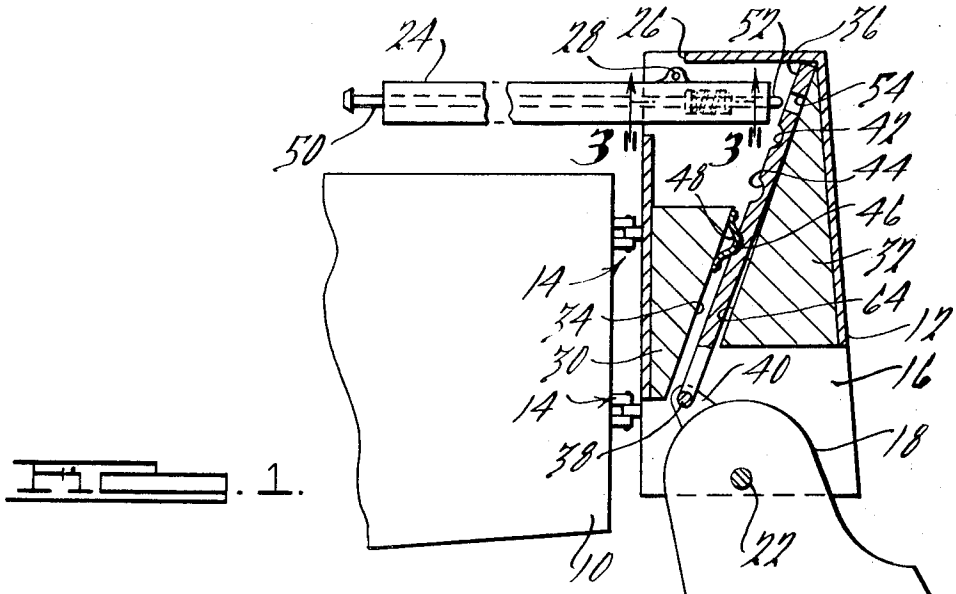


FIG. 1.

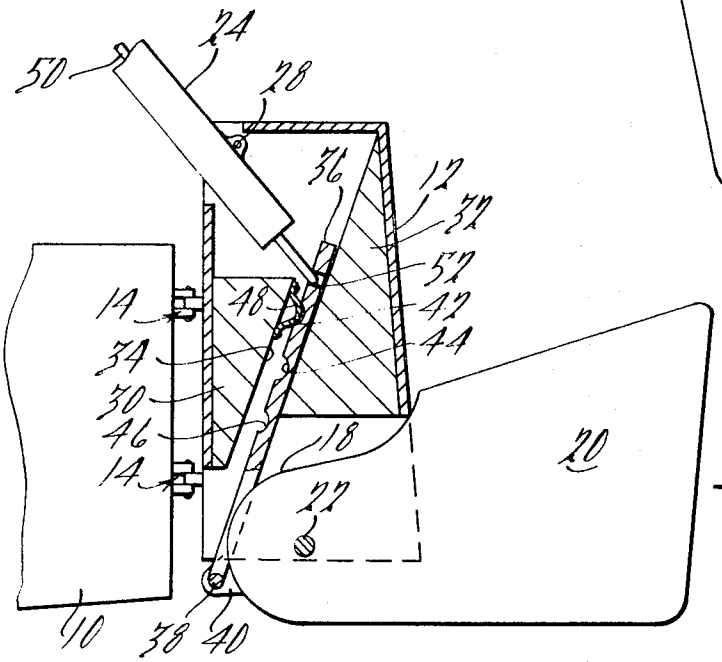


FIG. 2.

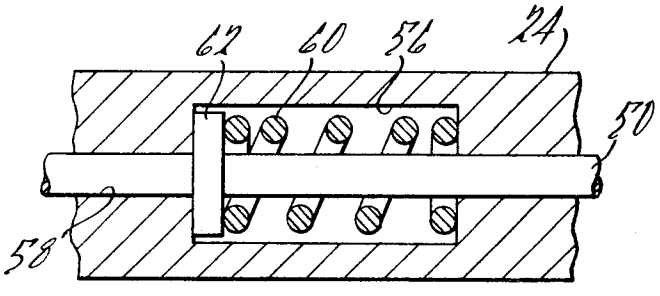


FIG. 3.

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RUDDER CONSTRUCTION FOR SAILBOATS

Boats such as small sailboats which are frequently operated in shallow water may be damaged in the event that the rudder strikes an obstruction in the water. The present invention provides a rudder construction in which the rudder blade is pivoted on a horizontal axis on its support frame so that it will automatically spring upwardly in the event that an obstruction is encountered, thereby preventing damage to the rudder blade. Rudder constructions of this general type have been proposed heretofore as in U. S. Pat. No. 2,991,749, issued July 11, 1961, and U.S. Pat. No. 3,085,540, issued Apr. 16, 1963. The latter patent is subject to the disadvantage that with the construction shown therein the position of the rudder blade is not subject to control by the operator of the boat and the mechanism could become fouled so that the rudder would not return to its vertical position when the obstruction has been passed. In U.S. Pat. No. 2,991,749 upward pivoting of the rudder effects a corresponding movement of the tiller handle, which is undesirable.

In accordance with the present invention a yieldable detent means operably connected between the rudder blade and its support frame retains the blade in either its normal vertical position, or a horizontal position, or one or more intermediate positions. The detent means takes the form of an element movable with the rudder blade as the same is pivoted on a horizontal axis and cooperable with a fixed detent element on the rudder support frame. Upward pivoting of the rudder blade takes place without any corresponding movement of the tiller. However, the tiller may be manipulated to engage the movable detent element connected to the rudder blade to move the latter to any desired position.

IN THE DRAWINGS

FIG. **1** is a fragmentary vertical sectional view illustrating the rudder construction of the present invention and showing the rudder blade in its normal vertical position;

FIG. **2** is a view similar to FIG. **1** but showing the rudder blade in its horizontal position; and

FIG. **3** is a fragmentary sectional view taken on line 3—3 of FIG. **1**.

A boat equipped with the rudder construction of the present invention includes a transom **10** and a rudder support frame **12** which is mounted for rotation on a vertical axis by means of hinge elements **14** which pivotally connect the frame **12** to the transom of the boat. The frame **12** may comprise a hollow, generally rectangular boxlike structure having side walls **16** between which the upper end **18** of the rudder blade **20** is pivotally mounted for movement in a vertical plane by a pin **22**. A tiller **24** extends rearwardly through an opening **26** into the support frame **12** and is connected thereto by a pin **28** so that the tiller **24** may be pivoted on a horizontal axis relative to the frame **12**. When the tiller **24** is swung in a horizontal plane its engagement with the side walls **16** of the frame **12** will effect swinging of the frame and the rudder **20** carried thereby on the hinge members **14**.

Internally of the support frame **12** a pair of guide blocks **30** and **32** define an upwardly and rearwardly inclined slot **34** within which a detent bar **36** is slidably confined. The detent bar **36** has its lower end pivotally connected by a pin **38** to a lug **40** on the upper end of the rudder **20**. The detent bar **36** is provided with a series of notches **42, 44** and **46** which are adapted to be engaged by a curved leaf spring **48** which is fixed to the inclined rear edge of the guide block **30**. When the rudder is in its normal vertical position the detent spring **48** is engaged within the notch **46** in the detent bar **36**, as shown in FIG. **1**. If the rudder should strike an obstruction in the water, the rudder will swing upwardly about the pin **22** against the resistance of the spring **48** until the latter reengages within the notch **44** or the notch **42**, depending upon the force with which the rudder strikes the obstruction. It will be noted that the upward pivotal movement of the rudder and the corresponding sliding movement of the detent bar **36** within the slot **34** do not cause any corresponding movement of the tiller **24**.

The tiller **24** is provided with a longitudinally extending bore within which a push rod **50** is slidably disposed. The rear end **52** of the rod **50** is adapted to be extended through the end of the tiller **24** into an opening **54** at the upper end of the detent bar **36**. Interiorly of the tiller **24** is an enlarged diameter portion **56** of the bore **58** in the tiller, and a spring **60** within the enlarged portion **56** reacts against a shoulder **62** on the rod **50** to urge the latter forwardly or out of engagement with the detent bar **36**.

The rudder **20** is shown in FIG. **2** in its horizontal position in which spring **48** engages the notch **42**. After the obstruction has been passed, the rudder may be returned to its normal vertical position by swinging the tiller upwardly about its pivot pin **28** and depressing the rod **50** against the force of spring **60** to cause the end **52** thereof to engage within the opening **54** in the detent bar **36**. The tiller **24** is then swung downwardly towards its normal operating position to cause the detent bar to move upwardly through slot **34** until the spring **48** reengages in notch **46**. When the rod **50** is then released, the rudder and the tiller will be in their normal operating positions.

It will be apparent that the push rod **50** may be engaged with the hole **54** in the detent bar **36** in any position of the latter within the slot **34** so that the helmsman can manually position the rudder in either its vertical, horizontal or intermediate position as may be warranted by sailing conditions.

In order to reduce friction and facilitate sliding movement of the detent bar **36** within the slot **34**, the inclined surface of the guide block **32** may be provided with one or more projections **64** made of nylon or other friction-reducing material over which the detent bar **36** slides.

What I claim as my invention is:

1. A rudder construction for boats comprising a rudder support member mounted on the transom of the boat for rotation on a vertical axis, a rudder carried by said support for rotation therewith, said rudder being pivoted on a horizontal axis on said support for movement between a normal vertical position and a generally horizontal position, detent means between said support and rudder for releasably holding the latter in either of said positions, said detent means including a movable member connected to said rudder, a tiller for rotating said support on said vertical axis, and an operating means associated with said tiller, said operating means normally being disposed out of engagement with said movable member whereby said rudder is movable from said vertical position to said horizontal position without causing movement of said tiller and being man-

ually operable to engage said movable member to shift said rudder between said positions upon movement of said tiller.

2. Rudder construction according to claim 1 wherein said movable member is pivotally connected to said rudder and slidably disposed within said support, and a fixed detent element on said support and cooperable with said movable member to define said positions of said rudder.

3. Rudder construction according to claim 2 wherein said operating means comprises an axially movable rod mounted on said tiller and spring means urging said rod out of engagement with said movable member, said movable member having an opening therein adapted to receive one end of said rod and said tiller being movable in a vertical plane to align said rod with said opening in any position of said movable member.

4. Rudder construction according to claim 2 wherein said rudder support member has an upwardly and rearwardly inclined slot therein and said movable member comprises an elongated bar slidably confined within said slot, said bar having a plurality of notches thereon, said fixed detent element being secured within said slot and engageable in said notches.

5. Rudder construction according to claim 4 wherein one of said notches on said bar defines a position of said rudder intermediate said vertical and horizontal positions.

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