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Pearce

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[54] SAILING CRAFT RUDDERS

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

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

[58] **Field of Search** ..... 114/39, 127, 128, 114/130–133, 136–139, 144 R, 144 A, 145 R, 162, 164–172; 244/87, 88; 16/128–134, 171–179

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[57] **ABSTRACT**

The disclosure is of a sailing craft rudder of the kind comprising a rudder stock to which are fitted a tiller and a rudder blade, the rudder stock comprising a forepart formed of a length of extruded bar with a guideway receiving substantially T-shaped attachment portions of gudgeon brackets, and preferably this length of bar also has flanges and channels for the attachment of cheek plates and a cap or tiller.

7 Claims, 9 Drawing Figures

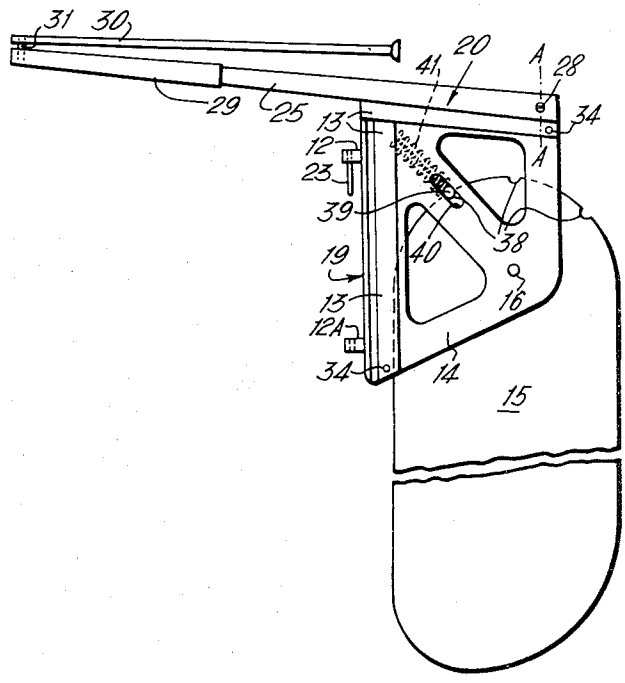


Fig. 1.

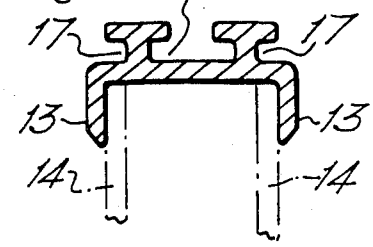


Fig. 2.

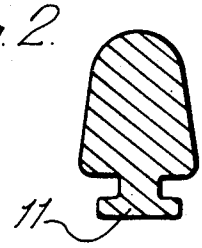


Fig. 4.

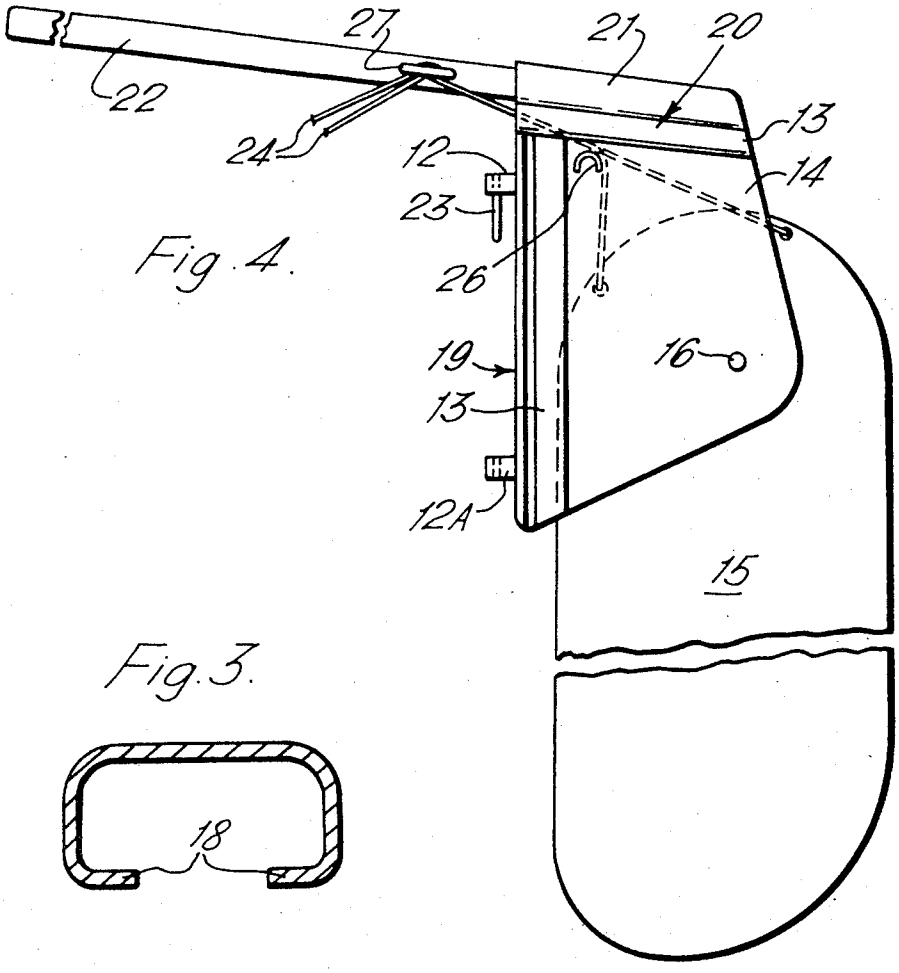


Fig. 3.

Fig. 5.

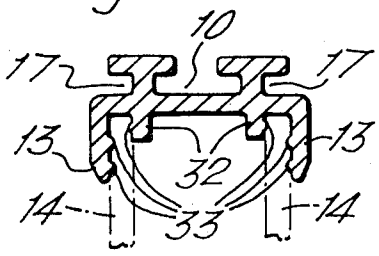


Fig. 6.

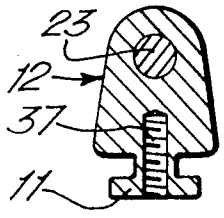


Fig. 7.

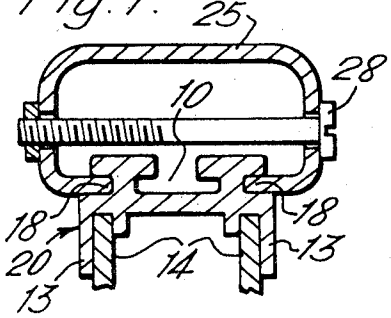


Fig. 8.

Fig. 9.

SAILING CRAFT RUDDERS

INTRODUCTION AND BACKGROUND OF THE INVENTION

This invention relates to sailing dinghy or like rudders of the kind (herein called "the kind defined") comprising a rudder stock to which are fitted fixedly or movably or removably a tiller and a rudder blade. Conventionally with a rudder of the kind defined the blade is pivotally attached to the stock, the latter is shipped in an easily-removable manner on the dinghy transom by means of a pair of gudgeons, and the tiller is pushed into a cap or one or more brackets or an aperture provided at the top of the stock, which is usually made of wood.

Wooden rudder stocks are often quite bulky and heavy and costly to make, and it is not easy to produce economically a range of wooden rudder stocks of different sizes and gudgeon-spacings to suit dinghies of different classes.

The invention is therefore intended to provide an improved sailing dinghy rudder of the kind defined.

BRIEF SUMMARY OF THE INVENTION

According to the invention there is provided a sailing dinghy rudder of the kind defined, wherein the rudder stock comprises a forepart in the form of a length of extruded aluminum or light metal alloy bar having a cross-section which provides a guideway receiving substantially T-shaped attachment portions of gudgeon brackets.

FURTHER DESCRIPTION AND ADVANTAGES OF THE INVENTION

Preferably the said cross-section also provides two lateral flanges for the attachment of two cheek plates between which the rudder blade is located, and additionally or alternatively it may provide two lateral channels so that another length of bar of the same cross-section can be used as an upper part of the stock to receive the margins of a cap or tiller of substantially C-shaped cross-section. Advantageously the gudgeon brackets and/or the cap consist of lengths cut from extruded bars of aluminum or light metal alloy of suitable cross-section.

The invention facilitates the economical production or strong light-weight convenient rudders which can readily be adapted for use with sailing craft of different classes or types, and thereby the range of complete rudders or parts needed by a storekeeper to meet most potential demans can be substantially reduced.

The scope of the monopoly sought is defined in the claims hereinafter, and how the invention may be put into practice appears from the following description and the accompanying drawings, in which preferred constructions in accordance with the invention are illustrated diagrammatically and by way of example,

BRIEF DESCRIPTION OF THE VIEWS IN THE DRAWINGS

FIGS. 1, 2 and 3 being views showing the cross-sections of extruded metal bars for making rudder stock foreparts, gudgeon brackets and caps or tillers respectively,

FIG. 4 being a side view of an assembled rudder and tiller,

FIG. 5 a view showing a modified cross-section of an extruded metal bar,

FIG. 6 a sectional view of a gudgeon bracket,

FIG. 7 a detail view in section on the line A—A in FIG. 8,

FIG. 8 a side view of a modified assembled rudder and tiller, and

FIG. 9 being a detail view in section showing how a gudgeon bracket is secured in a rudder stock forepart.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIG. 1 shows a cross-section which provides a guideway 10 to receive substantially T-shaped attachment portions 11 (FIG. 2) of gudgeon brackets 12 and 12A (FIGS. 4 and 8) cut from a bar having the cross-section shown in FIG. 2.

The cross-section shown in FIG. 1 also provides two lateral flanges 13 for the attachment of cheek plates 14 between which the rudder blade 15 (FIGS. 4 and 8) is located, being pivotally mounted by means of a bolt 16.

The cross-section shown in FIG. 1 also provides two lateral channels 17 so that a length of bar of this cross-section can be used as an upper part 20 (FIGS. 4 and 8) of a rudder stock to receive the margins 18 (FIGS. 3 and 7) of a cap 21 (FIG. 4) or tiller 25 (FIGS. 7 and 8) of substantially C-shaped cross-section.

FIGS. 4 and 8 show rudders each having a stock formed by a forepart 19 and upper part 20 both of the cross-section shown in FIG. 1 or FIG. 5, two cheek plates 14, and two gudgeon brackets 12 and 12A cut from bar of the cross-section shown in FIG. 2 and providing T-shaped attachment portions are secured in the forepart 19. All the parts of the stock are secured together by appropriate means, preferably synthetic resin adhesive, and their outer surfaces are protectively finished by anodizing or lacquering or in any other suitable manner. After the brackets 12 and 12A are cut from the extruded bar they are drilled through and the bracket 12 is furnished with a pintle 23 whilst the bracket 12A has a hole so that the rudder can be hung in the usual manner on a complementary pair of gudgeons (not shown) on a dinghy transom.

FIG. 4 shows a stock in which a tiller 22 of hollow extruded metal is pushed into a cap 21 which is of the cross-section shown in FIG. 3, and lines 24 connected to the blade 15 are run over a fairlead 26 inside the stock to one or more cleats 27 on the tiller 22 so that the helmsman can raise and lower or fasten the blade 15 in a selected position. The fairlead 26 consists of a short length of metal of semi-annular cross-section having its ends secured in correspondingly shaped slots in the two cheek plates 14.

In the modification shown in FIG. 8 the tiller 25 is of the substantially C-shaped cross-section shown in FIGS. 3 and 7 and tapers and is pushed directly on to the upper part 20, the margins 18 of the tiller 25 being received in the lateral channels of the upper part 20. A screw 28 (FIGS. 7 and 8) extending transversely through the tiller 25 of substantially C-shaped cross-section can be tightened to prevent undesired displacement of the tiller 25. FIG. 8 illustrates the tiller 25 fitted with a heat-shrunk sleeve 29 of synthetic plastics material to form a comfortable grip, and an easily-removable tiller extension rod 30 connected to the tiller 25 by a bolt 31 which fits loosely so as to allow the

desired freedom of movement between the tiller 25 and the extension rod 30. In another modification (not shown) a cap of substantially C-shaped cross-section has its margins secured to the upper margins of the cheek plates and an upper part of rectangular cross-section is secured between the upper margins of the cheek plates.

FIG. 5 illustrates a modified extruded metal bar cross-section which provides two internal flanges 32 so that the margins of the cheek plates 14 are held between the respective flanges 13 and 32 when bar of this cross-section is used to form the forepart 19 and upper part 20 of a rudder stock. FIG. 5 also shows how the flanges 13 and 32 may be formed with small longitudinal protuberances or splines 33 which cause a tight interference fit with the cheek plates 14 and are deformed when the cheek plates 14 are fitted to the parts 19 and 20. In order to fix the cheek plates 14 still more securely to the parts 19 and 20 it is preferred to provide rivets 34 as shown in FIG. 8, fixing the cheek plates 14 to the respective flanges 13.

There are some variations in the spacings of rudder gudgeon brackets on the sterns of sailing craft, and it is therefore advantageous if the positions and spacing of the gudgeon brackets 12 and 12A can be adjusted. For this purpose the forepart 19 of the rudder stock is preferably provided with several suitably spaced holes 35 as shown in FIG. 9 to allow screws 36 to be passed through selected holes 35 and screwed tightly into screw-threaded holes 37 in the gudgeon brackets 12 and 12A.

Instead of or in addition to the lines 24 shown in FIG. 4 for holding the blade 15 in the raised or lowered or other selected position, there may be detent means as shown in FIG. 8, the blade 15 being provided in an arcuate portion of its edge with notches 38 for engagement by a detent bolt 39 guided in slots 40 in the cheek plates 14 and loaded by a strong compression spring 41 located between the cheek plates 14. The spring 41 can be constituted by one or more blocks or thick-walled sleeves of rubber with or without stiffeners or guides of other material. Tension spring means can be used instead of the spring 41, for example in the form of rubber bands or bungee stretched between the bolts 39 and 16 at the outer sides of the cheek plates 14.

From the above description it may be readily appreciated that the invention facilitates the economical manufacture of sailing dinghy and like rudders in a range of convenient sizes and offering advantages in use.

Various modifications may be introduced without departing from the invention.

In one such modification (not shown) the cheek plates 14 and internal flanges 32 are not as shown in FIG. 5 but the cheek plates are provided with small marginal flanges or beads and the internal flanges are of complementary substantially L-shaped cross-section to lock the cheek plates to the forepart and upper part of the rudder stock.

A tiller to be pushed on to the upper part 20 of the rudder stock, for example like the tiller 25 in FIG. 8, may be provided with an internal transverse stop plate to engage the upper part 20 and locate the tiller in its longitudinal direction thereon. The tiller extension rod 30 may be attached to the tiller by means of a small universal joint or any other means allowing sufficient freedom of motion of the rod 30, and there may be a quick-release pin or other fastening means to facilitate rapid attachment or release of the rod 30.

The fairlead 26 for the lines 25 need not be positioned as shown in FIG. 4, for example it may be positioned on the top of the forepart 19 and may be secured thereto by a screw instead of having its ends in slots in the cheek plates 14.

Instead of securing each of the gudgeon brackets 12 or 12A by a single screw 36 it is possible to use two or more screws with suitable spacing of the holes 35 and provision of tapped holes in the gudgeon brackets.

If a cap is secured directly to the upper margins of the cheek plates a solid or hollow upper part of rectangular or round or other shape may be secured between the upper margins of the cheek plates, or it is possible to dispense with the upper part entirely if the cap is sufficiently robust or is of tubular form.

What is claimed is:

1. A sailing dinghy rudder comprising a rudder stock, two parallel cheek plates forming parts of said stock, and a rudder blade located between said cheek plates, said stock further comprising a forepart in the form of a length of extruded metal alloy bar having a cross-section such that said forepart has a forward-opening guideway of T-shape in cross-section and two rearward-extending lateral flanges, said two cheek plates being secured to said forepart each by means of a respective one of said lateral flanges.

2. A rudder as claimed in claim 1, comprising two internal flanges forming integral portions of said forepart, said two internal flanges being between and parallel to said lateral flanges, each of said two cheek plates having a margin held between one of said lateral flanges and one of said internal flanges.

3. A rudder as claimed in claim 1, comprising two internal flanges forming integral portions of said forepart, said two internal flanges being between and parallel to said lateral flanges, each of said two cheek plates having a margin held between one of said lateral flanges and one of said internal flanges, longitudinal splines integral with said lateral flanges and said internal flanges being deformed and making tight interference fits with said margins of each of said cheek plates respectively.

4. A rudder as claimed in claim 1, said alloy bar having a cross-section such that there are also two lateral channels, a second length of said bar being secured to said forepart and forming an upper part of said stock.

5. A rudder as claimed in claim 1, said rudder blade being pivotably mounted between said two cheek plates and having an arcuate edge portion with a plurality of spaced notches therein, a spring-loaded detent bolt being movably guided in slots in said cheek plates for selective engagement with said notches for holding said rudder blade in any selected one of several possible positions.

6. A rudder as claimed in claim 1, said alloy bar having a cross-section such that there are also two lateral channels, a second length of said bar being secured to said forepart and forming an upper part of said stock, a tiller of substantially C-shaped cross-section having portions of its margins located one in each of said two lateral channels of said upper part, and a screw extending transversely through said tiller being tightenable to secure said tiller in position on said upper part.

7. A sailing dinghy rudder comprising a rudder stock, two parallel cheek plates forming parts of said stock, and a rudder blade located between said cheek plates, said stock further comprising a forepart in the form of a length of extruded metal alloy bar having a cross-section such that said forepart has a forward-opening guideway of T-shape in cross-section and two rearward-extending lateral flanges, said two cheek plates being secured to said forepart each by means of a respective one of said lateral flanges, said alloy bar having a cross-section such that there are also two lateral channels, a second length of said bar being secured to said forepart and forming an upper part of said stock, said rudder blade being pivotably mounted between said two cheek plates and having an arcuate edge portion with a plurality of spaced notches therein, a spring-loaded detent bolt being movably guided in slots in said cheek plates for selective engagement with said notches for holding said rudder blade in any selected one of several possible positions, a tiller of substantially C-shaped cross-section having portions of its margins located one in each of said two lateral channels of said upper part, and a screw extending transversely through said tiller being tightenable to secure said tiller in position on said upper part.

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