Sept. 25, 1962 G. G. SCHMITT 3,055,024

BOAT RAIL

Filed May 22, 1961

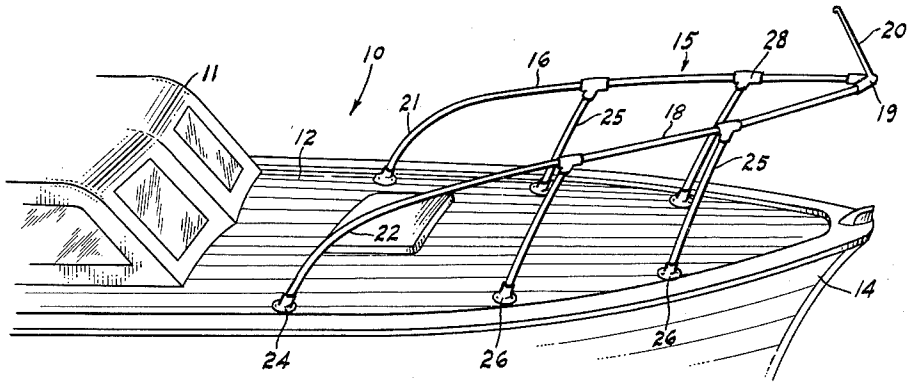


Fig. 1

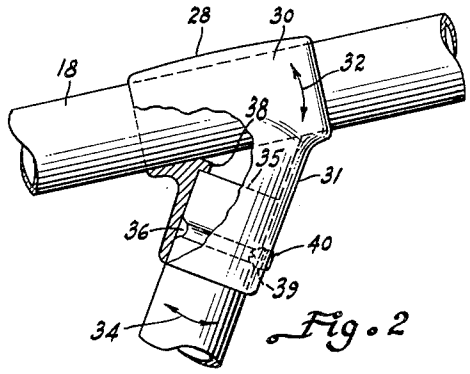


Fig. 2

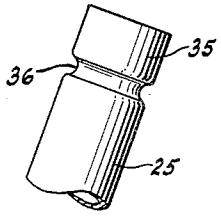


Fig. 3

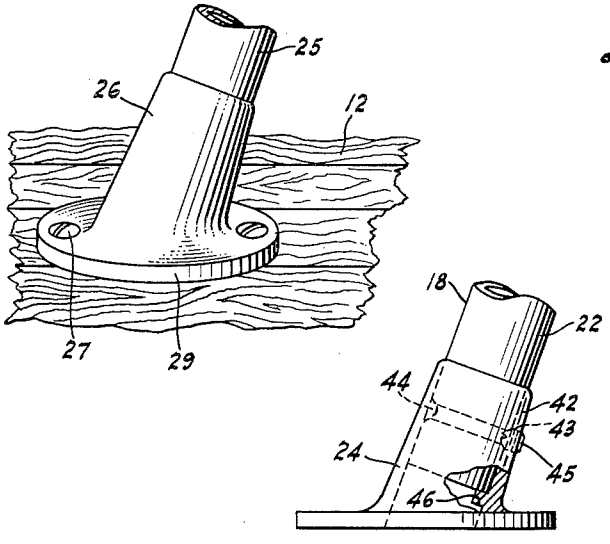


Fig. 4

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BOAT RAIL

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This invention relates generally to boat rails and more particularly to an improved construction and method for mounting a boat rail on a boat.

Cabin cruisers and other quality type motor boats are commonly provided with a bow rail to lessen the danger of a passenger falling over the side. Such rail must be rugged in construction, yet sleek and trim so that the rail adds to the appearance of the boat and does not detract from it. Conventionally, highly polished metal boat rails are used having a forward flagstaff and side rails diverging rearwardly and downwardly therefrom, the rear ends of the side rails being fastened to the boat deck. Between the side rail rear ends and the flagstaff, stanchions are provided, the number of stanchions used depending on the fore-and-aft extent of the rail. Mounting such a rail on a boat involves substantial problems because the deck to which the rail must be fastened is usually cambered. Moreover, the deck camber on one boat may be different from the deck camber on another boat, and still further complicating the matter, the deck camber on a given boat often varies from one place to another.

Heretofore, boat rails have been provided which are universal, that is one rail design can be mounted on variety and range of boat sizes. The rail stanchions each have a base flange extending at an acute angle relative to the stanchion axis. By rotatably adjusting each stanchion, its base flange can be positioned flush on the portion of the deck upon which it is to seat. Once it is rotatably adjusted, the upper end of each stanchion is drilled and tapped so that it may be fastened by screws to a T-joint on the rail. Such arrangement is satisfactory from the standpoint of end product. However, the time required for each boat installation is very substantial. For example, a given installation might take four hours, a large portion of the time being used in performing the drilling and tapping operations.

One object of this invention is to provide a novel boat rail structure, so designed that the time involved in installing the rail on a boat is only a small fraction of the time required heretofore.

Another object of this invention is to provide a boat rail design which completely eliminates drilling and tapping operations during an installation procedure.

Another object of this invention is to provide a boat rail so designed that it can be installed without the use of special tools requiring special skills.

Another object of this invention is to provide an improved, simplified joint between a rail stanchion and a rail T whereby the parts can be securely and quickly joined together regardless of the rotatable position of the stanchion in the T.

A further object of this invention is to provide an adjustable connection, between a stanchion and a boat rail T-joint, which is so designed that there is no danger of the parts pulling apart once they have been fastened together.

A still further object of this invention is to provide an improved structure of the character described which is low in cost and provides great savings in labor costs.

Other objects of this invention will be apparent hereinafter from the specification and from the recital in the appended claims.

In the drawing:

FIG. 1 is a perspective view of the bow section of a boat having mounted thereon a boat rail constructed according to this invention;

FIG. 2 is an enlarged fragmentary view, part side elevation, part section, showing the connection employed between the upper end of each rail stanchion and the T-joints on the rail;

FIG. 3 is a fragmentary side elevational view showing the construction used at the upper end of each stanchion; and

FIG. 4 is a fragmentary view showing the connection employed between the rear ends of the boat rail and the base flanges for such ends.

Referring now to the drawing by numerals of reference, and first to FIGURE 1, 10 denotes generally a boat having a cabin 11 and deck 12. The bow of the boat is indicated at 14. Deck 12 is cambered, having a fore-and-aft center portion which is elevated relative to downwardly and outwardly sloping sides portions. The amount of camber may differ from place to place. Usually it is greater adjacent the cabin 11 and progressively less as it approaches the bow 14. Deck 12 may be constructed of any suitable material. Usually wood is used.

Mounted on deck 12 is a V-shaped boat rail 15 comprising side rail sections 16 and 18 which extend fore-and-aft along the left and right side, respectively, of the boat and which meet at bow point member 19 at the apex of the V and from which a flagstaff 20 extends upwardly. The side rails may comprise one continuous piece of polished metal tubing bent to form a forward radius to receive bow point member 19 and diverging rearwardly therefrom to downwardly curved rear portions 21 and 22. The rear ends of the side rails are connected to base flanges 24 which are screwed or otherwise fastened to the boat deck 12. Intermediate the bow point section and the curved rearward ends of the side rails are substantially straight stanchions or supports 25. In FIG. 1, two stanchions are shown for each side rail. However, it will be understood that the number of stanchions provided will vary according to the overall size of the rail structure. Each stanchion has a base flange or member 26 fastened to deck 12 by screws 27; and the upper end of each stanchion is cylindrical and connected to the boat rail by means of T-joints 28. The structure of each stanchion 25, base flange 26 and T-joint is the same. Therefore, only one structural unit will be described.

The base pad 29 (FIG. 2) of each flange 26 is flat and extends diagonally to the axis of its stanchion 25. The angularity may be fifteen degrees, or some other degree, depending on the particular boat rail design. It will be apparent that if the rail is mounted on deck 12 as shown in FIG. 1 and then the stanchions are rotated, the base flange on each stanchion can be disposed flush against the deck regardless of the deck camber. Conventionally, the lower end of each stanchion is press fitted into its base flange. However, it may be otherwise fastened thereto.

As shown in FIG. 2, each T-joint 28 has a tubular top portion 30 and a downwardly angularly extending tubular neck portion or socket 31. The tubular top portion is rotatably, angularly adjustable around the periphery of the side rail, as indicated by arrows 32. In this way the direction in which the stanchion extends can be varied as desired. To properly seat the stanchion base flange 26 on deck 12, the stanchion is adapted to be rotatably adjusted as indicated by the arrows 34. To allow such rotatable adjustment and then provide for quick and easy fastening of the stanchion to depending portion 31 of the T-joint, the design of this invention is provided.

The upper end 35 (FIG. 3) of each stanchion 25 is provided with an annular groove 36 which extends in a plane perpendicular to the axis of the stanchion. When telescopically projected into portion 31 of joint 28, end 35 is engageable with a stop 38. This places groove 36 in register with one or more pre-tapped holes 39 in neck portion 31 for hex head set-screws 40. The inner ends of

the set-screws have a radius which mates with the radius of groove 36. The outer ends of the set screws are substantially flush with the outer surface of portion 31. When threaded inwardly, using a hex wrench or the like, the set-screws project into groove 36, and when tightened they positively lock stanchion 25 against both axial or rotatable movement. When loosened slightly, the stanchion is still held against axial movement; but rotatable adjustment is permissible.

It will be seen, therefore, that to properly locate and fasten a given stanchion in place, the assembler merely has to rotate the stanchion to desired position to properly seat its base flange 26 on deck 12. This is done with the set screw 40 threaded to project part way only into groove 36. Then he fastens the flange to deck 12 using the screws 27, and tightens the set screws 40 to lock the stanchion to its T-joint 28. Once flange 26 is fastened to the deck, rotatable movement of the stanchion is prevented. Thus the set screws are relegated to the task of merely holding the rail from slipping off of the stanchion. Even if the set-screws become slightly loose, joint 28 cannot be pulled off the stanchion because screws 40 still project into groove 36. A suitable liquid substance for bonding screws in place once they are tightened can be employed.

Since the rearward ends 21 and 22 of the side rails 16 and 18 are not rotatable, it is necessary that the rear base flanges 24 be rotatable relative to the side rails. As shown in FIG. 4, each base flange 24 has a tubular section 42 which receives the rail end. Such rail end has an annular groove 44 adapted to receive one or more set-screws 45 threaded through tapped holes 43 in section 42. A stop 46 is provided so that groove 44 can be easily aligned with the set-screws 45. The assembler merely rotates the base flanges 24 so that they seat flush on deck 12 and then fastens them to the deck and tightens screws 45. If screws 45 become loose they still hold the rail from pulling out of the base flanges. However, they are suitably tightened and/or bonded in place so that they will not come loose.

With the described design, no drilling and tapping of the T-joints, stanchions and base flanges after adjustment is required. The stanchions are not drilled and tapped at all; and the T-joints and rear base flanges 24 are provided with the desired tapped holes in manufacture. Thus, a great amount of assembler time and effort is saved. Installation costs are substantially reduced, thereby reducing the ultimate cost of the overall rail. Even amateur assemblers can install the described rail on their boats quickly and easily, and with no special tools. All that is needed is a hex head wrench for the set screws and a screw driver for the deck screws.

While the invention has been described in connection with a particular embodiment thereof, it will be understood that it is capable of further modification, and this application is intended to cover any variations, uses, or adaptations of the invention following, in general, the principles of the invention and including such departures from the present disclosure as come within known or customary practice in the art to which the invention pertains, and as fall within the scope of the invention or the limits of the appended claims.

Having thus described my invention what I claim is:

1. A boat rail structure adapted to be connected to the deck of a boat and adjusted relative thereto according to the particular camber of the deck comprising, in combination, a rail positionable adjacent the bow of the boat and having a left section and a right section vertically spaced from the deck and extending generally in a fore-and-aft direction, a plurality of substantially straight stanchions on the deck and supporting each rail section, each stanchion having an upper portion and a lower end, a flat base flange affixed to each stanchion lower end and extending diagonally relative to the longitudinal axis of the stanchion, a joint for each stanchion having a top section

to which the rail is connected and a downwardly extending neck portion, each stanchion upper portion and the joint neck portion with which it is associated telescopically interfitting and having cylindrical engaging surfaces to permit rotatable adjustment of the stanchion about its longitudinal axis, one of the interfitting portions having a groove elongated in a plane perpendicular to its stanchion axis, and a fastening member on the other of the interfitting portions in register with said groove and adjustable in a radial direction relative to its stanchion axis to project in the groove, the fastening member when projected part way only into the groove locking its stanchion against axial movement relative to the neck portion of the joint while permitting free rotatable adjustment of the stanchion, said stanchions being adapted to be rotatably adjusted relative to each other so that the base flange of each stanchion may be positioned substantially flush with the cambered deck and all of the flanges may be properly fastened to the deck.

2. A boat rail structure as recited in claim 1 wherein each joint neck portion is tubular and the upper portion of each stanchion is cylindrical to fit into its associated joint neck, the groove being in the stanchion and the fastening member in the joint.

3. A boat rail structure as recited in claim 2 when each joint neck portion is provided with an internal stop with which its stanchion upper end is engageable and when so engaged aligns the stanchion groove with the joint fastening member.

4. A boat rail structure as recited in claim 2 wherein each groove forms an annular ring completely around its stanchion upper portion whereby the fastening member therefor may project into the groove regardless of the rotatably adjusted position of the stanchion.

5. A boat rail structure as recited in claim 1 wherein the fastening member on each joint comprises a set screw having a rounded end projectable into the groove of its associated stanchion, the configuration of said groove in cross-section being similar to the rounded end of the set screw.

6. A boat rail structure as recited in claim 1 wherein the left and right sections of the rail each have a portion extending downwardly to the deck, each rail portion having a groove perpendicular to the rail axis, and a base flange member mountable on each rail portion and having a radially adjustable fastening member projectable in the associated rail groove to hold the parts against relative axial movement.

7. A boat rail structure adapted to be connected to the deck of a boat and adjusted relative thereto according to the particular camber of the deck comprising, in combination, a V-shaped rail positionable adjacent the bow of the boat with the apex of the V located forwardly and having a left section and a right section extending rearwardly, said left and right section each having a rear end extending downwardly to the deck, each rear end rotatably supporting a flat base flange extending diagonal to the rail axis, an annular groove in each rear end, a fastening member on each base flange and projectable into its associated rail groove to lock the flange to its rail section and in rotatably adjusted position, a plurality of substantially straight stanchions between said apex and the rear end of each rail section for supporting the rail, each stanchion having a cylindrical upper end and a lower end, each stanchion upper end having an annular groove located in a plane perpendicular to the stanchion axis, a flat base flange affixed to each stanchion lower end and extending diagonally relative to the longitudinal axis of the stanchion, a T-joint for each stanchion having a tubular top section through which the rail extends and a downwardly opened tubular neck portion which telescopically receives the cylindrical upper end and groove of its stanchion, each stanchion being rotatably adjustable about its longitudinal axis, a set screw on each joint neck in register with the groove of its stanchion and adjustable in a radial direction

relative to the stanchion axis to project into the groove, each fastening member when projected part way only into the groove of its associated stanchion locking the stanchion against axial movement relative to the neck portion of its joint while permitting free rotatable adjustment, said stanchions being adapted to be rotatably adjusted relative to each other so that the base flanges of all stanchions may be positioned substantially flush with the

cambered deck so that all of the flanges may be properly fastened to the deck.

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