May 27, 1930. A. W. W. VAN HOORN 1,760,673

BOAT CONSTRUCTION

Filed Dec. 14, 1929

Fig. 1.

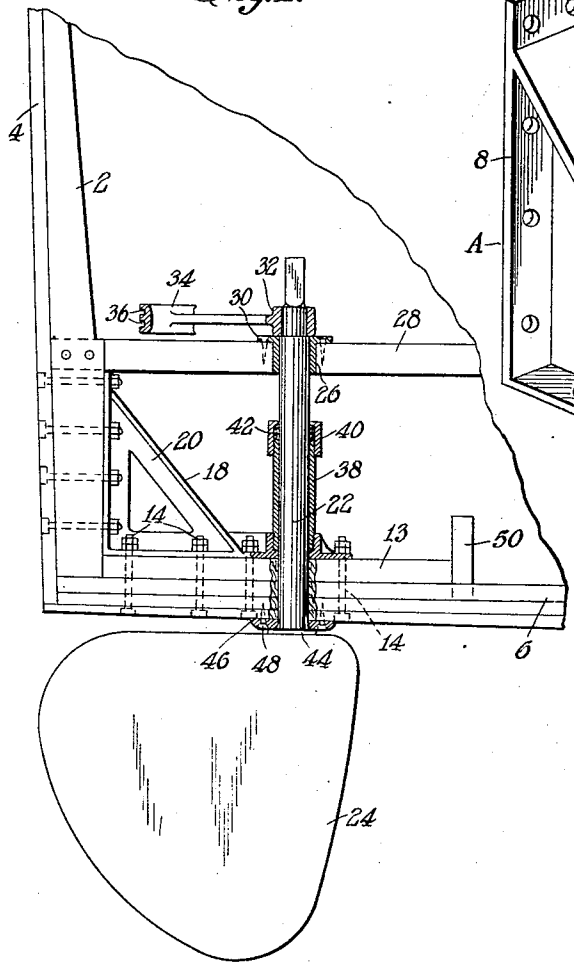
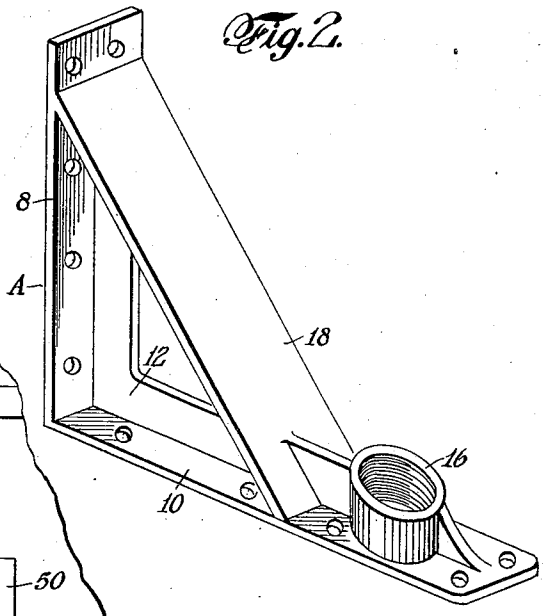


Fig. 2.



INVENTOR
ALBERT W. W. VAN HOORN
BY
F. W. Gibbs
ATTORNEY

Patented May 27, 1930 1,760,673

UNITED STATES PATENT OFFICE

ALBERT W. W. VAN HOORN, OF WILMINGTON, DELAWARE, ASSIGNOR TO AMERICAN CAR AND FOUNDRY COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY

BOAT CONSTRUCTION

Application filed December 14, 1929. Serial No. 414,000.

This invention relates generally to boats and has particular reference to a combined stern knee and rudderport.

In the construction of boats, particularly the smaller type of sail boats, and also in the construction of motor boats and wooden yachts generally, it is necessary at the stern of the boat to reinforce the connection between the end of the keel and the transom with an element known in the art as a stern knee. It has been the usual practice to provide a knee formed of wood, and it has been found that wooden knees oftentimes interfere with the proper design of the rudder housing and also these wooden knees have a tendency to warp after some usage, and indeed have been found to be cracked, fractured and broken, all of which provide obvious disadvantages.

One object of the present invention is to eliminate the disadvantages present in a stern knee formed of wood.

Another object of the invention is the provision of a combined stern knee and rudderport.

Still another object of this invention is the provision of a combined stern knee and rudderport formed of a single casting.

A further object of this invention is the provision of means acting as a stern knee which will obtain accurate and proper positioning of the rudder stock.

A still further object of the present invention is to improve the construction of boats.

Another object of this invention is the provision of a unitary member comprising a stern knee and rudderport which is so formed that the usual rudder sleeve which extends through the keel is eliminated, thereby providing a construction in which the rudder stock may be of increased diameter whereby to reduce the tendency of breaking or bending of said rudder stock.

Other objects and advantages of this invention will be apparent from the following description taken in conjunction with the accompanying drawings, in which:

Figure 1 is a sectional view through the stern of a boat, showing the present invention applied thereto; and

Fig. 2 is a perspective view of the device of the present invention.

Referring now more particularly to the drawings, Fig. 1 shows in section a portion of the stern of a boat, the figure showing the transom post 2, transom 4 and the horn timber 6. As before mentioned, it has been the practice to reinforce the connection between the end of the keel at the horn timber and the transom post, but this has heretofore been done with stern knees known as Hackmatack knees, or by oak-crooks or other wooden elements. These have a tendency to warp greatly and, further, are cumbersome and awkward to handle, and in addition, oftentimes crack and break. Further, it has been found that when stern knees formed of wood are employed, should it be necessary to remove these wooden stern knees it is very difficult to do so without removing surrounding timber. The present invention eliminates the use of these wooden stern knees and provides a strong reinforcing connection between the transom and keel of the boat, and in addition, provides a single unit which includes a stern knee and a rudderport, the details of the invention being now specifically described.

The device of the present invention is shown in perspective in Fig. 2 and comprises a single unit in the form of a casting, which may be galvanized to render the same rustproof; the casting being preferably of angle shape having a vertical leg 8 and a horizontal leg 10. The vertical and horizontal legs are reinforced preferably by a continuous rib 12 arranged intermediate the side edges thereof.

This casting, which is designated generally at A, is arranged in the angle defined between the transom post 2 and the horn timber 6, and said casting A is supported or mounted on a supporting member 13 of wood or the like. The casting A is secured to the transom post 2 and to the supporting member 13 by means of bolts 14 or other suitable fasteners which pass through the transom post and transom and the horn timber, respectively.

Adjacent the outer end of the horizontal leg 10 of the casting A an opening is formed which is surrounded by an internally threaded annular flange 16; the opening and flange

16 defining a rudderport. The continuous rib 12 extends to and is formed with the flange 16, as clearly shown in Fig. 2. The casting A is preferably reinforced by a diagonal brace 18 which extends from adjacent upper edge of the vertical leg 8 to a point intermediate the ends of the horizontal leg 10 and preferably adjacent the flange 16. The under surface of the diagonal brace 18 is provided with a rib 20 which merges with the rib 12, as shown clearly in Fig. 1.

The horn timber is provided with an opening which is so arranged that the opening in the horizontal leg 10 of the casting will be alined therewith; or in other words, the rudderport defined by the flange 16 is alined with an opening in the horn timber, through which opening the rudder stock 22 of the rudder 24 extends, the upper end of the stock 22 being arranged through a guide bearing 26 supported in rudder bearer 28. The guide bearing 26 is provided with a flange 30 by which said bearing is secured to the rudder bearer and on which the hub 32 of a quadrant 34 is mounted; the quadrant 34 being provided with the grooves 36 for the reception of the usual tiller ropes for actuating or turning the rudder in the usual manner.

Secured in the rudderport 16 by being threadedly engaged therein, and surrounding the rudder stock 22, is a sleeve 38, the upper end of which threadedly receives a packing gland 40, which latter secures the packing 42 for preventing leakage of water through the rudderport and sleeve 38, as will be apparent.

The rudder stock 22 is formed integral with the rudder 24 and has a shoulder 44 which is adapted to bear against a bearing 46 secured to the horn timber by suitable fasteners such as the screws 48. Fifty (50) indicates more or less diagrammatically one of the frame members of the boat and the member 13 may be preferably of a length such as to engage against said frame member to aid in retaining the same against displacement.

From the above description it is believed that anyone skilled in the art will recognize that the device of the present invention provides a combined stern knee and rudderport which is strong and durable and which is easily and quickly applied during the construction of a boat and which also may be easily and quickly removed should occasion demand. The device of the present invention eliminates the use of an independent sleeve through the rudder stock opening in the horn timber, thereby permitting the use of a rudder stock of greater diameter with the same size opening in the horn timber. This provides a more rugged construction and eliminates the tendency of bending or breaking of the rudder stock adjacent the rudder. The construction also provides a new design of stern knee which eliminates the use of the customarily used oak-crooks or Hackmatack knees and provides a construction in which there is no tendency of warping or breaking of the knee.

What is claimed is:

1. In a boat, a combined stern knee and rudderport mounted on the horn timber and secured thereto and to the transom post.

2. In a boat, horn timber, a transom post, a casting secured to said horn timber and transom post and provided with a rudderport adjacent one end thereof.

3. In boat construction, a combined stern knee and rudderport comprising a casting of angle shape having a diagonal brace and provided with an opening adjacent one end thereof adapted to receive a rudder stock, and an annular flange around said opening.

4. In boat construction, an angle secured to the transom post and horn timber and provided with an opening adjacent one end thereof adapted to receive the rudder stock, an annular flange surrounding the opening, and a sleeve secured to the flange and surrounding the rudderstock.

5. In a boat, a combined stern knee and rudderport comprising a metal angle member secured to the transom post and horn timber and having an opening in one leg thereof, a flange surrounding the opening, a sleeve secured in said flange, said sleeve and opening being of such size as to receive the rudder stock, and a packing gland secured to the upper end of the sleeve.

In witness whereof I have hereunto set my hand.

ALBERT W. W. VAN HOORN.