Nov. 4, 1930. H. SCOTT-PAINE 1,780,767

MEANS FOR STEERING WATER CRAFT

Filed March 16, 1929

Fig. 1.

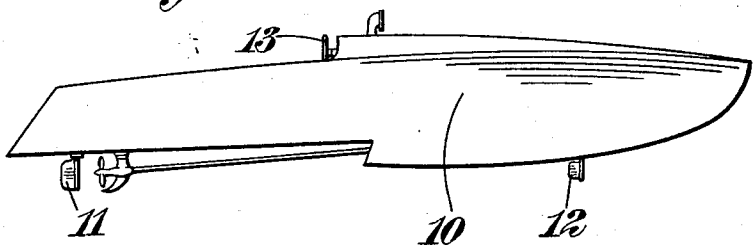
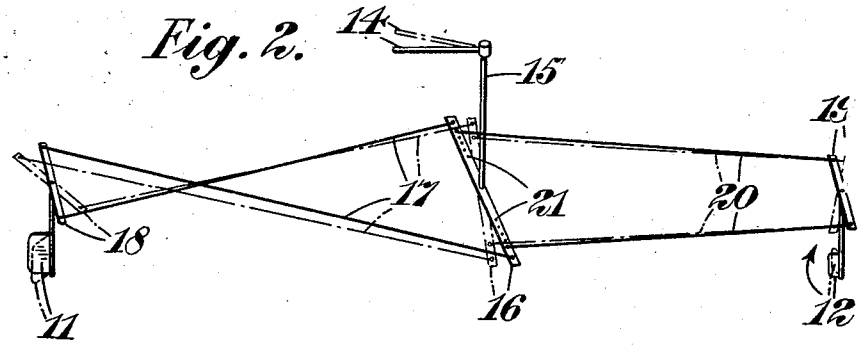


Fig. 2.



INVENTOR
Hubert Scott-Paine,
By Byrnes, Stebbins & Parmelee,
His attorneys

Patented Nov. 4, 1930 1,780,767

UNITED STATES PATENT OFFICE

HUBERT SCOTT-PAINE, OF HYTHE, SOUTHAMPTON, ENGLAND

MEANS FOR STEERING WATER CRAFT

Application filed March 16, 1929, Serial No. 347,606, and in Great Britain December 1, 1928.

This invention is for improvements in means for steering ships, boats, and like water-craft of any size, including outboard motor-boats, and particularly high-speed vessels.

The invention comprises a method of steering water-craft consisting in using a rudder that is situated forward of amidships in addition to a rudder situated at or near the stern.

Preferably the first-mentioned rudder is situated as far forward of amidships as is convenient, and in the case of a high-speed motor-boat in which a considerable part of the length of the boat is lifted out of the water when travelling at high speeds the additional rudder is situated at the forward end of the area that is immersed when the boat is travelling at its maximum speed.

Separate controls may be provided for the two rudders so that they can be independently and simultaneously operated, or they may be interconnected so that a single controlling device operates both of them. In the latter case the interconnection may be such that they are both moved through the same angle in any controlling operation, or the connection may be such that movement of one of the rudders is a predetermined proportion of the movement of the other rudder.

The forward rudder as well as the after one, may be of any desired shape and size, and preferably neither of them is provided with any balancing portion. Furthermore, the after rudder may be reduced in size, to say, one-half or less of that which is at present considered desirable in any particular case.

It is known to provide an additional forward rudder on some vessels such as ferry boats or cross-channel boats, but in these cases the bow rudder extends forward from its pivotal axis and it is not used when the boat is travelling ahead, being locked in its amidships position. The present invention differs from these arrangements in that the forward rudder extends aft from its pivotal axis in the same way as does the stern rudder and acts as a controllable forward rudder.

In the case of a high-speed motor-boat, the bow rudder may be, if desired, so positioned that it is not deeply immersed but operates in the surface-water, but if found more advantageous it may be arranged to operate in the solid water.

One embodiment of the invention applied to a high-speed motor-boat will now be described, by way of example, with reference to the accompanying drawings. In the drawings, which are of a purely diagrammatic character,

Figure 1 is a side elevation of the boat, and

Figure 2 shows in perspective the rudders and the controlling gear only.

The boat 10 has a rudder 11 situated near the stern, and an additional rudder 12 which is situated forward of amidships, approximately at the forward end of the immersed area when the boat is travelling at its maximum speed, and is so positioned that it operates in the surface-water. The rudder 11 is about half the size of that which is at present considered desirable in any particular case, and the rudder 12 is smaller, than the rudder 11. Neither of these two rudders is provided with any balancing portion, and each of them extends aft from its pivotal axis.

The rudders are interconnected and controlled by a single controlling device such as a steering wheel 13 (Figure 1) or a tiller 14 (Figure 2). In the arrangement of controlling gear shown in Figure 2, the tiller 14 is secured to a post 15 which is operatively connected to a yoke 16 so that when the tiller is actuated the yoke will be turned about the axis of the post 15. The ends of the yoke 16 are connected by crossed cables 17 to a yoke 18 that is operatively connected to the rudder 11. The rudder 12 is operatively connected to a yoke 19 and each end of this yoke is connected by a cable 20 to an eye 21 or other fastening device on the yoke 16. The cables 20 do not cross one another as do the cables 17. A number of eyes 21 or other fastening devices is provided on the yoke 16 on each side of the post 15. Thus it will be seen that by attaching the cables 20 to the desired eyes or other fastening devices the amount of movement imparted to the rud-

der 12 as compared with that imparted to the rudder 11 can be varied at will.

It will be appreciated that when the tiller 14 is turned from the full line to the chain line position shown in Figure 2, the yokes, cables, and rudder will then occupy the positions shown in chain lines and the boat will turn in the direction of the arrow.

The invention is not restricted to any particular construction of controlling gear for the rudders as this gear can be varied within very wide limits depending upon the size and kind of craft to which the invention is applied.

It has been found that the arrangements described above for steering watercraft give greatly increased maneuverability, better directional stability and better control of the vessel at any speed, and all of these advantages become more marked as the speed of the vessel is greater.

I claim:

A water-craft having a rudder situated forward of amidships, a rudder situated at or near the stern, a single controlling device for operating both rudders, and adjustable means interconnecting the rudders to permit the movement of one rudder as compared with that of the other to be varied at will.

In testimony whereof I affix my signature.

HUBERT SCOTT-PAINE.