Feb. 4, 1930. J. E. HOWARD 1,745,370

STEERING MEANS FOR WATER CRAFT

Filed April 13, 1928

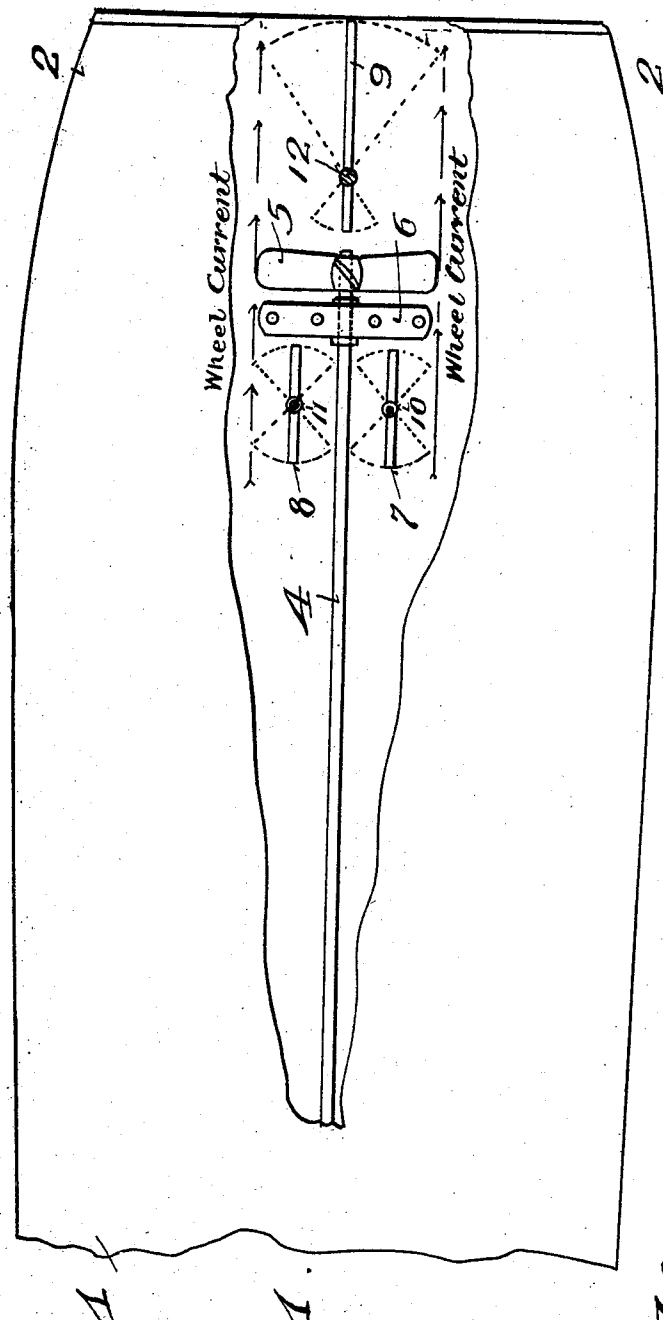


Fig. 1.

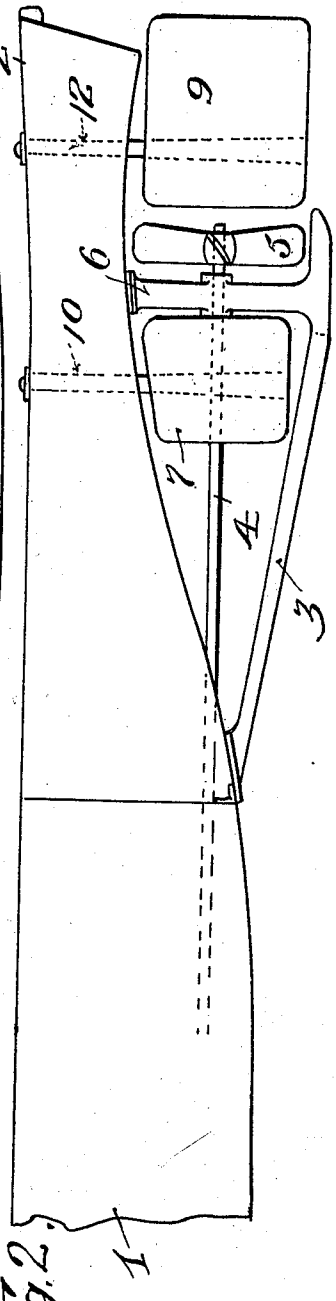


Fig. 2.

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Patented Feb. 4, 1930

1,745,370

UNITED STATES PATENT OFFICE

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STEERING MEANS FOR WATER CRAFT

Application filed April 13, 1928. Serial No. 269,662.

This invention relates in general to improvements in the steering mechanism of water craft.

One of the objects of this invention is the provision of an improved and highly efficient means for guiding boats through the water comprising a particular arrangement of rudders.

A further object of this invention is the provision of a plurality of rudders associated in a particular manner with respect to the propeller for the purpose of efficiently controlling the movements of boats through the water.

A further object of this invention is the disposition of the plurality of rudders in the propeller stream by means of which the boat may be effectively steered.

These and other objects as will appear from the following disclosure are secured by means of this invention.

This invention resides substantially in the combination, construction, arrangement and relative location of parts all as will more fully appear hereinafter.

Referring to the drawings,

Figure 1 is a plan view with a portion broken away of the stern of a boat showing the arrangements and parts forming this invention.

Fig. 2 is a side elevational view of the structure disclosed in Figure 1.

There are a number of forms of devices in the art by means of which an effort is made to provide efficient steering mechanism for water craft. It is the purpose of this invention to provide a simple structure by means of which boats may be effectively handled by means of the particular association of rudders with respect to the propeller. As is well known, the reaction of the propeller or wheel on the water produces a current stream which travels in a direction away from the stern of the boat. It has been found that by properly placing a plurality of rudders in this propeller or wheel stream that the boat may be made to respond more quickly and effectively to the rudders when they are rotated at an angle with respect to the propeller or wheel stream.

Referring to the drawings for a better understanding of the invention, the hull of the boat is shown at 1 having the overhanging stern 2 which is longitudinally curved as is clearly seen from Fig. 2. The propeller shaft 4 is journaled in the boarding support 3 attached to the undersurface of the hull and has mounted on its end the propeller or driving wheel 5. The rudders 7 and 8 are mounted on the vertical rotatable rudder posts 10 and 11, respectively, directly in front of the propeller 5. A third rudder 9 is mounted on the vertical rotatable rudder post 12 in back of the propeller 5 so as to lie in the longitudinal axis of the propeller shaft 4. The rudders and propeller are mounted under the overhanging portion 2 of the hull.

The operation of the device will be at once apparent. The powerful current or stream of water set in motion by the propeller will react on the rudders 7, 8 and 9 when they are rotated at an angle with respect to the direction of movement of the stream so that the rapidly moving water will act thereon to cause the boat to change its course in a direction depending upon the direction in which the rudders are rotated. The dotted lines represent the two extreme positions to which the rudders may be moved.

It will be evident from this construction that due to the reaction of the propeller stream on the rudders a boat may be effectively and rapidly made to change its course on rotation of the rudders.

I am well aware that many changes in the detail of construction and relative association of parts will readily occur to those skilled in the art and I do not, therefore, desire to be strictly limited to the form of the invention as disclosed for the purposes of illustrating the principles of my invention but rather to the field of protection defined in the appended claims.

What I seek to secure by United States Letters Patent is:

1. In a structure of the type described, the combination with the hull of a boat, of a propeller and shaft mounted at the stern thereof, and a plurality of rudders two of which are arranged one on each side of the propeller shaft so as to lie in the current stream there-

of and mounted to rotate in arcs the extreme ends of which are near to and non-intersective with the axis of the propeller shaft.

2. In a device of the type described, the combination with the hull of a boat, of a propeller and propeller shaft mounted thereon, and a plurality of rudders at least two of which are mounted forward thereof so as to lie in the current stream of the propeller and mounted to rotate in arcs the extreme ends of which are near to and non-intersective with the axis of the propeller shaft.

3. In an arrangement as described, the combination with a boat hull, of a propeller and propeller shaft mounted at the stern thereof, a plurality of rudders mounted forward of said propeller and a rudder mounted to the rearward thereof so that all of said rudders lie in the current stream of the propeller, the aforementioned plurality of rudders being mounted to rotate through arcs the extreme ends of which are near to but non-intersective with the axis of the propeller shaft.

4. In a device of the type described, the combination with a boat hull having an overhanging stern portion longitudinally curved on its lower surface, of a bracket supported below the overhanging portion, a propeller and a propeller shaft rotatably journaled in said bracketing, and a plurality of rudders mounted forward of said propeller and one on either side of said shaft so as to lie in the current stream, said plurality of rudders being mounted to rotate through arcs the extreme ends of which are near to the propeller shaft axis.

5. The combination as described, comprising a hull having an overhanging stern portion longitudinally curved on the underside thereof, a propeller and propeller shaft rotatively mounted on the hull under said overhanging portion, two rudders mounted on the hull for rotation through arcs the extreme ends of which are near to the propeller shaft; and about a vertical axis forward of said propeller and another rudder supported on the hull for rotation on a vertical axis arranged to the rearward of said propeller, all of said rudders lying within the current stream of said propeller.

6. In a device of the type described, the combination with the hull of a boat, of a propeller and propeller shaft mounted thereon, a rudder mounted aft of said propeller and two rudders disposed one on either side of and normally parallel to the axis of said propeller shaft and behind said propeller; and mounted to rotate through arcs the extreme ends of which are near to and non-intersective with the axis of the propeller shaft.

7. In an arrangement of the type described, the combination with a boat hull having an overhanging stern portion longitudinally curved on its lower surface, of a bracket supported below the overhanging portion, a shaft for said propeller journaled in said bracket, a rudder mounted aft of said propeller and two rudders disposed one on either side of and normally parallel to the axis of said propeller shaft and behind said propeller; and mounted to rotate through arcs the extreme ends of which are near to and non-intersective with the axis of the propeller shaft.

In testimony whereof I have hereunto set my hand on this 30th day of March A. D., 1928.

JAMES EDMUNDS HOWARD.