Oct. 3, 1944. C. T. PETKOFF 2,359,382

BOAT PROPELLING AND STEERING APPARATUS

Filed April 24, 1943

Fig 1

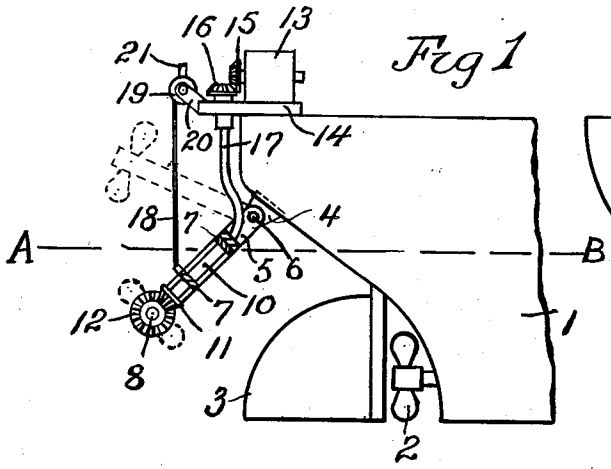


Fig 2

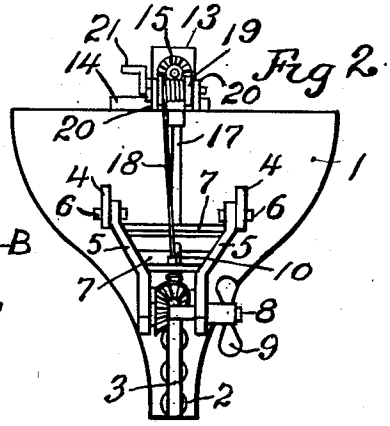


Fig 3

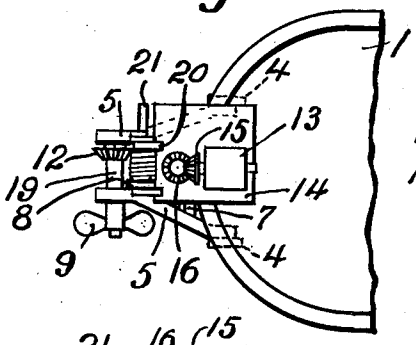


Fig 4

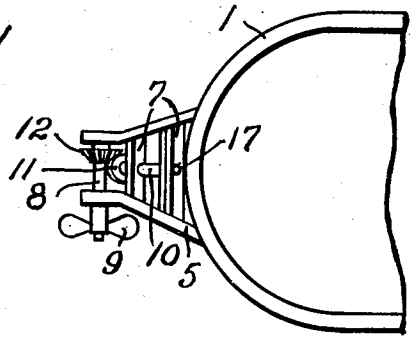
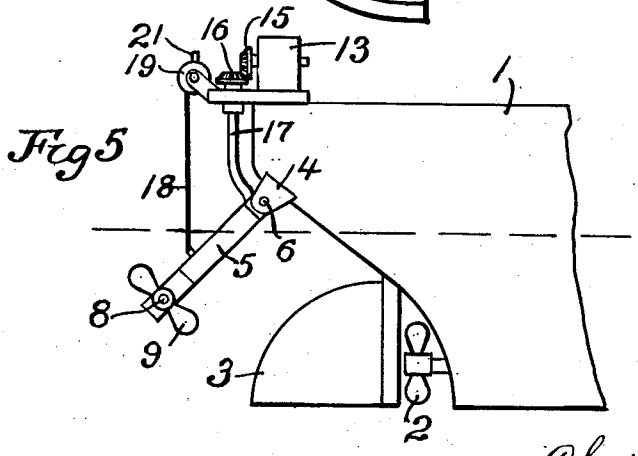


Fig 5



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UNITED STATES PATENT OFFICE

2,359,382

BOAT PROPELLING AND STEERING APPARATUS

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Application April 24, 1943, Serial No. 484,372

2 Claims. (Cl. 114—147)

My invention relates to improvements in boat propelling and steering apparatus. It is particularly adapted for use in self-docking large boats, and eliminating the use of tugs for such purpose.

One of the objects of my invention is the provision of novel apparatus of the kind described, which may be quickly, easily and inexpensively applied to a vessel during its construction or after it has been constructed and is in use.

A further object of my invention is the provision of a novel apparatus, which may be selectively applied to prow or to the stern of a vessel.

Still another object of my invention is the provision of a novel apparatus of the kind described, which is simple, inexpensive, strong, durable, not likely to get out of order, and which can be readily repaired, and is efficient in its operation.

The novel features of my invention are hereinafter fully described and claimed.

In the accompanying drawing, which illustrates one form of my invention, as applied to the stern of a vessel,

Fig. 1 is a view partly in side elevation and partly in vertical section, showing, in solid lines, the positions of the parts when the propeller is in the operative submerged position, and showing, in dotted lines, the frame and propeller lifted above the water, the stern portion only of the boat being shown.

Fig. 2 is a rear elevation, showing the position of the parts when the propeller is submberged.

Fig. 3 is a plan view of what is shown in Figs. 1 and 2.

Fig. 4 is a view similar to Fig. 3, with the power unit, reel and their supporting platform removed, to better show the construction of the frame below.

Fig. 5 is a full side elevation of the apparatus mounted on the stern portion of a boat, with the propeller shown in its submerged operative position.

Similar characters of reference designate similar parts in the different views.

1 designates the stern portion of the hull of a usual steam ship having the usual main propeller 2 and the rudder 3.

In applying my apparatus to the boat, two brackets 4, which may be steel plates, are fastened, as by welding, to the outer side of the metal hull 1, at opposite sides of the longitudinal center thereof.

A propeller support or frame is provided consisting, as shown, of two rearwardly converging side bars 5, the front ends of which are respectively pivoted by two pins 6 to the brackets 4 on an axis transverse to the length of the hull 1. Transverse bars connect the side bars and are designated by 7.

A propeller shaft 8, parallel with the axis of the frame, is rotatable in the side bars 5 adjacent to the outer ends thereof, and has fastened on it a propeller 9. A radial shaft 10 extends through and is rotatable in the transverse cross bars 7, and has fastened to and on its rear end a bevel gear 11 meshing with a bevel gear 12 fastened on the propeller shaft 8.

Different means may be provided for oppositely rotating the radial shaft 10. In the construction shown, a power unit, as an electric motor connected to usual reversing gearing, mounted in a casing 13, is mounted on a platform 14 mounted on and projecting rearwardly from the rear of the hull 1.

A bevel gear 15 of the power unit 13 meshes with a bevel gear 16 fastened to one end portion of a flexible driving shaft 17, the other end of which is fastened to the front end of the radial shaft 10.

In operative position, the side bars 5 of the propeller supporting frame extend rearwardly downwardly with the propeller 9 submerged, as shown in Figs. 2 and 5, and in solid lines as in Fig. 1.

When the propeller 9 is not to be used, it with its supporting frame 5—7 is swung upwardly from the submerged position, shown in solid lines in Fig. 1, to the dotted position shown therein, by a cable 18 attached at one end of one of the cross bars 7 of the frame, the other end of the cable being attached to and adapted to be wound on the periphery of a usual ratchet controlled reel 19 rotatably supported by two arms 20 on the platform 14. An operator standing on the platform 14 can operate the reel 19 to raise or lower the frame 5—7, by turning the reel crank 21 in the proper directions.

The flexible shaft 17 bends to adapt it to the different positions assumed by the frame 5—7.

When in the submerged position, the propeller 9 may be reversed in rotation to push the stern of the hull 1 in opposite directions, as may be needed, in cooperation with the employment of the main propeller 2, so as to steer and propel the boat into the desired docked position.

By having the side bars 5 of the frame converging rearwardly, as shown, a strong resist-

ance to the push of the propeller 9 in either direction is afforded.

By providing the radial shaft 10 with the flexible shaft 17 connected thereto closely adjacent to the axis 6—6 of the frame 5—7, the flexible shaft 17 is subjected to a minimum of distortion, during the swing of the frame to and from the submerged position.

The frame 5—7, when permitted, lowers by gravity, and its operative position may be varied to suit the position of the water line A—B on the hull 1, through control of the cable 18 attached to the reel 19.

Various modifications of my invention, within the scope of the appended claims, may be made, without departing from the spirit of my invention.

What I claim is:

1. In a boat propelling and steering apparatus, in combination with the hull of a boat, of a support, means pivoting said support to said hull on an axis transverse to the length of the hull, a propeller, means supporting said propeller on said support on an axis parallel with said axis, means for swinging said support from a position in which said propeller will be submerged to a position in which said propeller will be above the water, a rigid shaft rotatable on said support on an axis intersecting said first named axis, driving means connecting said shaft with said propeller, a power unit on said hull, and flexible driving means connecting said unit with said shaft by which said shaft may be rotated in opposite directions.

2. In a boat propelling and steering apparatus, in combination with the hull of a boat, a frame, means pivoting said frame to the outer side of the stern of said hull on an axis transverse to the length of the hull, a propeller, means supporting said propeller on said frame on an axis parallel with said axis, a power unit on said hull, driving means connecting said unit with said shaft for rotating said shaft in either direction, a platform on said hull projecting rearwardly from the stern above the water line and above said frame, a ratchet controlled reel having a crank adapted to be operated by a person on said platform, means supporting said reel on said platform, and a cable fastened to and adapted to be wound on said reel and fastened to and adapted to swing said frame upwardly from a position in which said propeller is submerged to a position in which said propeller will be above the water level.

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