No. 856,338. PATENTED JUNE 11, 1907.

A. L. CROSBY.

MEANS FOR PROPELLING AND STEERING VESSELS.

APPLICATION FILED JUNE 30, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

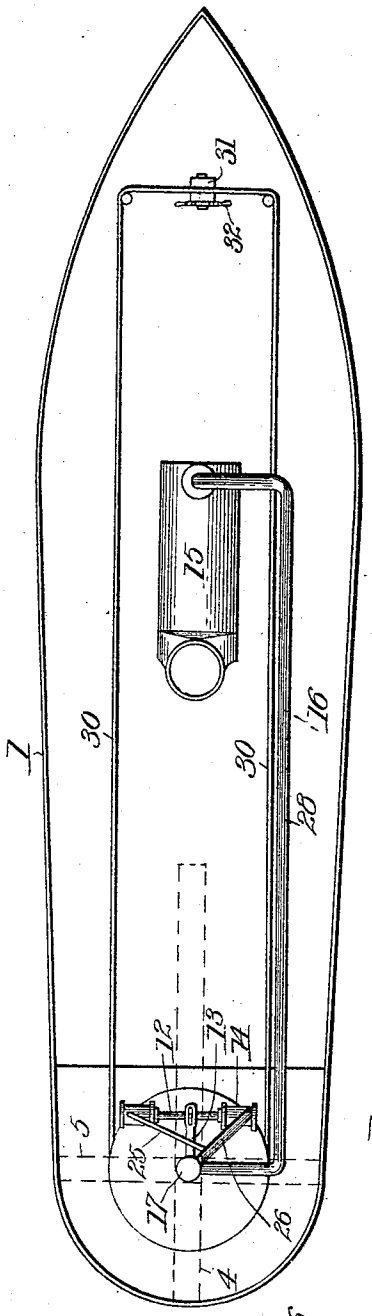


Fig. 2.

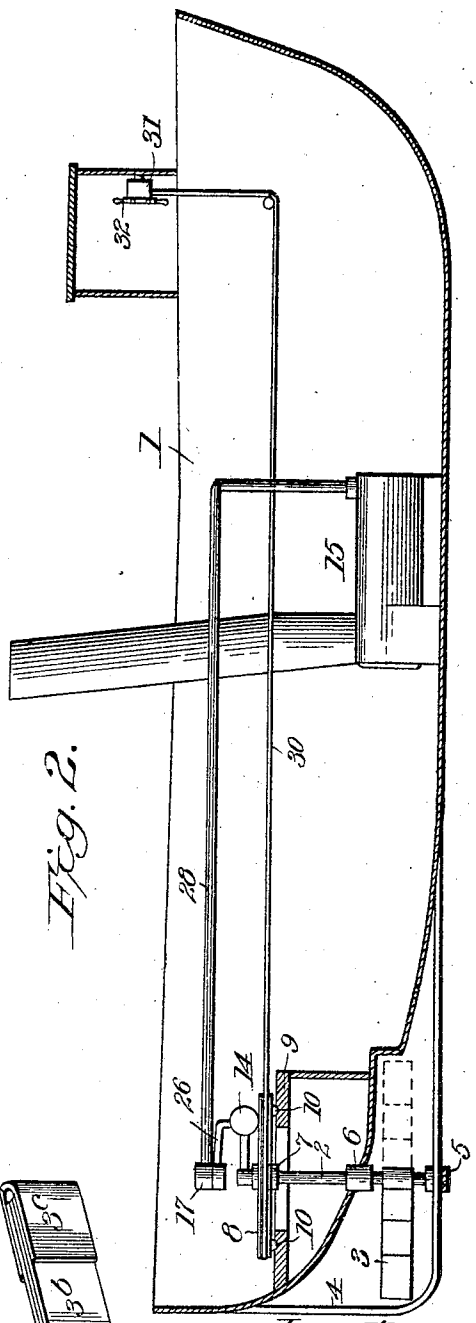


Fig. 4.

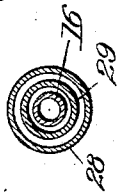
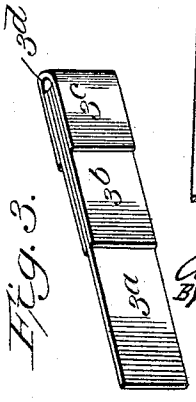


Fig. 3.



Witnesses

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2 SHEETS—SHEET 2

Fig. 6.

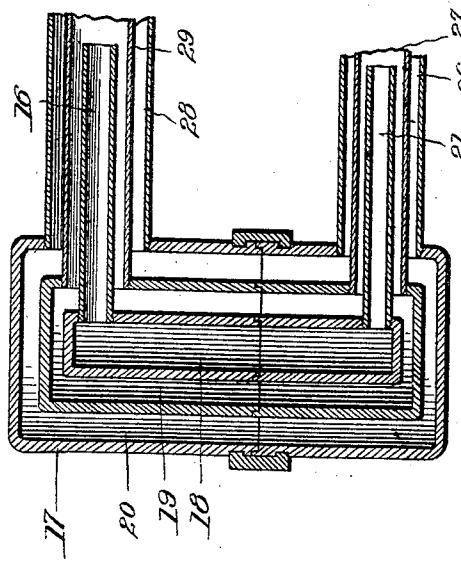


Fig. 7.

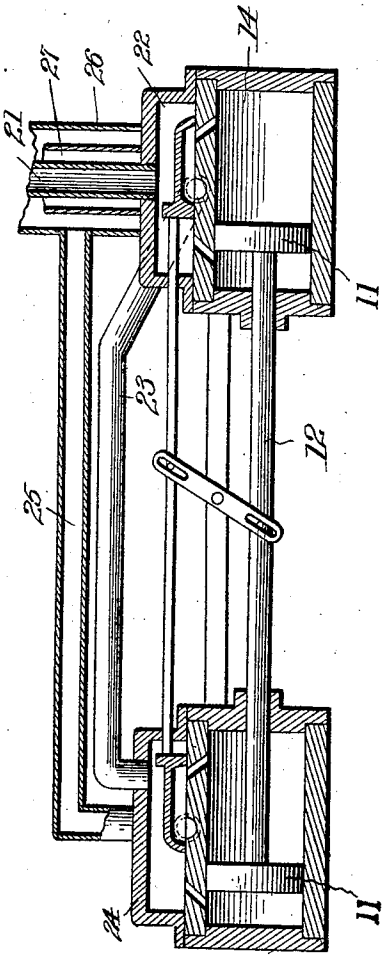
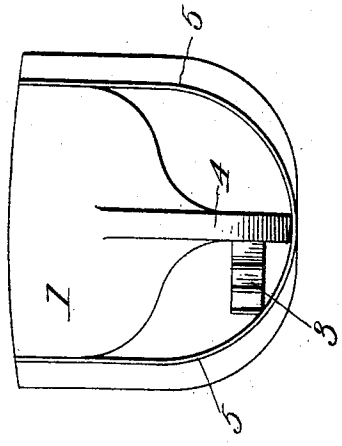


Fig. 5.



Witnesses

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MEANS FOR PROPELLING AND STEERING VESSELS.

No. 856,338. Specification of Letters Patent. Patented June 11, 1907.

Application filed June 30, 1906. Serial No. 324,249.

To all whom it may concern:

Be it known that I, ALBERT L. CROSBY, a citizen of the United States, residing at Portland, in the county of Multnomah and State of Oregon, have invented certain new and useful Improvements in Means for Propelling and Steering Vessels, of which the following is a specification.

This invention relates to means for propelling and steering vessels.

The object of my invention is to provide a propeller which vibrates similar to the tail of a fish, and which is so mounted that it is also adapted for steering the vessel.

Other objects and advantages will appear in the following description and will be more particularly pointed out in the appended claims.

In the drawings:—Figure 1 is a top plan view of a vessel provided with my propelling and steering mechanism. Fig. 2 is a vertical section of a vessel showing the propelling and steering mechanism. Fig. 3 is a detail perspective view of the propeller. Fig. 4 is a transverse section of the piping. Fig. 5 is a rear elevation of the vessel. Fig. 6 is a sectional view of the piping head, and Fig. 7 is a sectional view of the motor.

Referring more particularly to the drawings, 1, indicates the vessel. In the rear of the vessel upon a vertical shaft 2 is secured a propeller 3 formed of a number of flexible pieces of metal or other material. One of the pieces 3^a extends the full length of the propeller. On each side of this main or central strip or piece is arranged one of a pair of strips 3^b which are not so long as the main strip 3^a. Another piece 3^c is bent upon itself so as to lie on each one of the strips 3^b and at the same time to form an eye 3^d by which the propeller is secured to the shaft 2. The propeller lies above the lowermost plane of the boat beneath the rear reduced portion, the shaft 2 being extended below the propeller and journaled in a longitudinal guard 4 and a transverse guard 5, these guards being arranged to protect the propeller from injury. The shaft 2 is journaled at 6 in the bottom of the boat and at 7 in a rotatable platform or turret 8 supported at 9 so as to turn freely. If desired balls 10 may be interposed between the platform and its support, to reduce friction.

Upon the platform is supported the motor which may be of any suitable type or construction. In the drawings I have shown a duplex steam engine, the pistons 11 of which are connected by a rod 12 which in turn is connected by a pin and slot connection to the end of a lever or arm 13 extending at right angles from the shaft 2. It is apparent that when steam is delivered to the cylinder 14 of the engine to drive the pistons 11 alternately in different directions, the shaft 2 will be oscillated and the propeller 3 vibrated, thus propelling the vessel.

Steam is delivered to the engine from a boiler 15 through a pipe 16 which is connected to a head 17 formed with three concentric chambers 18, 19 and 20, the steam pipe 16 leading to the inner chamber 18. The lower portion of the head 17 is rotatable and has a branch steam pipe 21 leading from the inner chamber thereof and connected with the steam chest 22 of one of the cylinders. A pipe 23 leads from the exhaust of this cylinder to the steam chest 24 of the other cylinder. From the exhaust of the latter cylinder a pipe 25 leads to a pipe 26 surrounding the steam pipe 21 being spaced from said pipe by a pipe 27 which forms a dead air space about the steam pipe and prevents the cooling of the steam in the latter. The pipe 26 is connected to the outer chamber 20. From the outer chamber 20 a pipe 28 leads to the feed of the boiler 15 around the pipe 16 being spaced from the latter by a pipe 29 forming a dead air space to prevent the cooling of the live steam pipe.

The vessel is steered by shifting the motor about the axis or shaft of the propeller. This is accomplished by mounting the steering rope or cable 30 in a groove in the periphery of the rotary platform or turret 8, the two ends of the cable being connected to the drum 31 on the steering wheel 32.

It is apparent that when the steering wheel is rotated in one direction the motor will be shifted in one direction and vice versa. The rotatable portion of the head permits the motor to be shifted without destroying its connection with the steam boiler. When the motor is shifted, the shaft 2 is also shifted and likewise the propeller, the propeller thus acting to steer the vessel and also propelling the vessel in any position to which it may be shifted. The propeller may also be entirely reversed when it is desired to back the vessel, as shown in dotted lines in Fig. 2.

Having thus described my invention, what

I claim and desire to secure by Letters Patent is:—

1. The combination with a vibratory propeller shaft, and a propeller carried thereby, of a shiftable motor, connection between the shaft and the motor to cause the motor to vibrate the shaft and to shift the shaft with the motor and steering mechanism connected to the motor to shift it and consequently steer the vessel.

2. The combination with a vibrating propeller shaft and a propeller carried thereby, of a motor, means permitting the motor to be revolved about the shaft, and connection between the motor and the shaft to transmit motion from the motor to the shaft.

3. The combination with a vibratory propeller shaft, and a propeller carried thereby, of a reciprocating motor, a shiftable platform or turret for the motor, and an arm on the shaft, connected to the motor.

4. The combination with the vibratory propeller shaft, and the propeller carried thereby, of a rotatable platform surrounding the shaft, a motor carried by the platform, connections between the motor and the shaft, and a steering wheel connected to the platform.

5. The combination with the vibratory propeller shaft and the propeller carried thereby, of a steam engine connected to the shaft, a shiftable platform on which the engine is mounted, a steam boiler, and a connection between the boiler piping and the engine permitting the engine to be shifted.

6. The combination with the propeller shaft, and the steam engine mounted to shift about the shaft, of a boiler, a piping connecting the boiler and the engine, a piping surrounding the first mentioned piping to provide a dead air space, and an exhaust piping connected to the boiler and surrounding the dead air space piping.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALBERT L. CROSBY.

Witnesses:

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N. C. DUNNING.