

June 12, 1923.

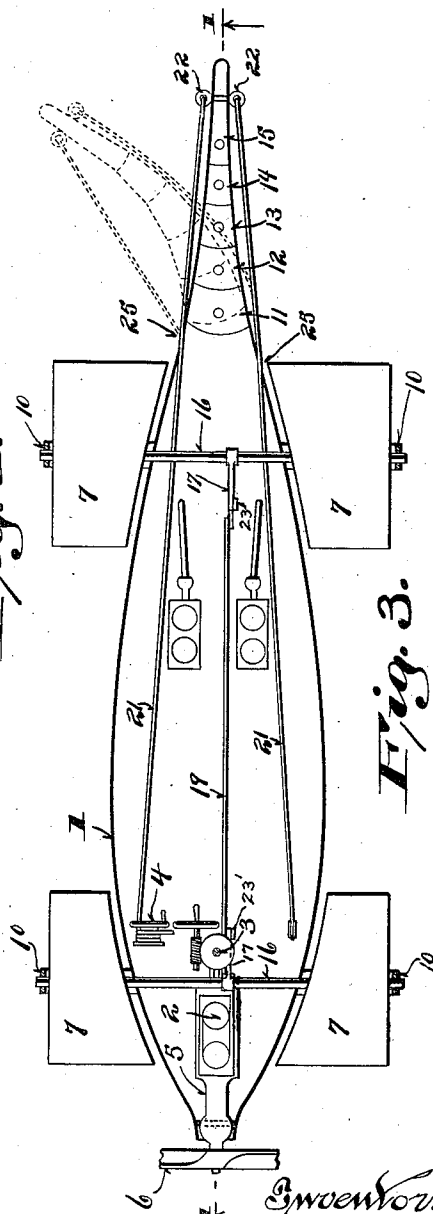
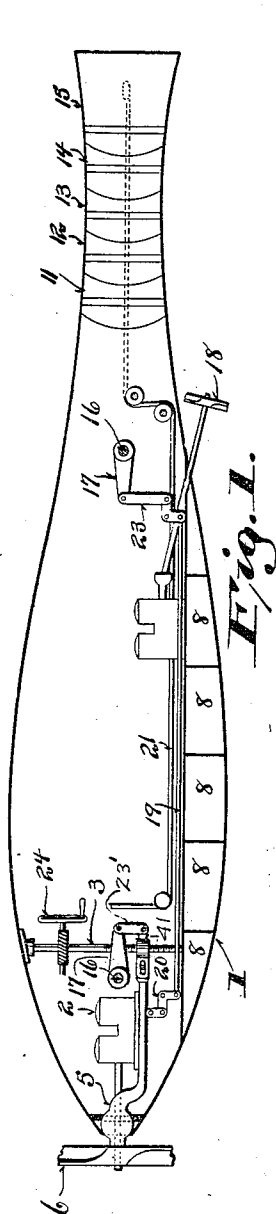
F. S. PERKINS

1,458,844

SUBMARINE BOAT

Filed Sept. 1. 1921

3 Sheets-Sheet 1



Inventor:
Frederick Stanley Perkins
By *Young & Young*
Attorneys

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Fig. 4.

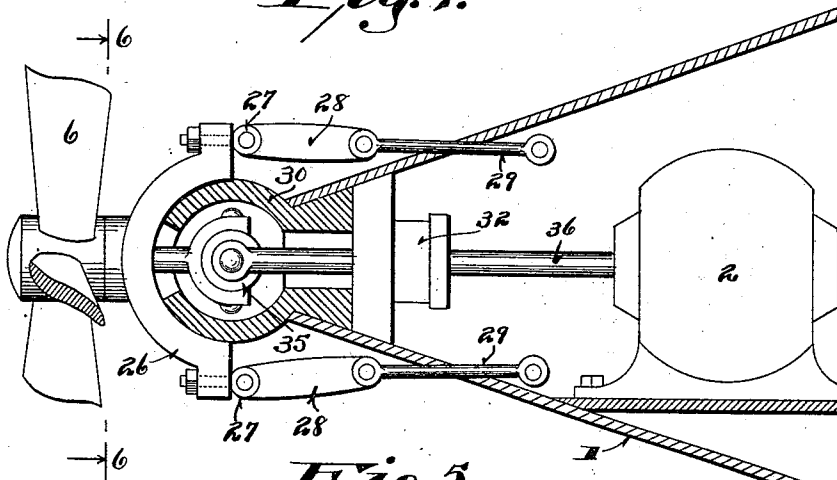


Fig. 5.

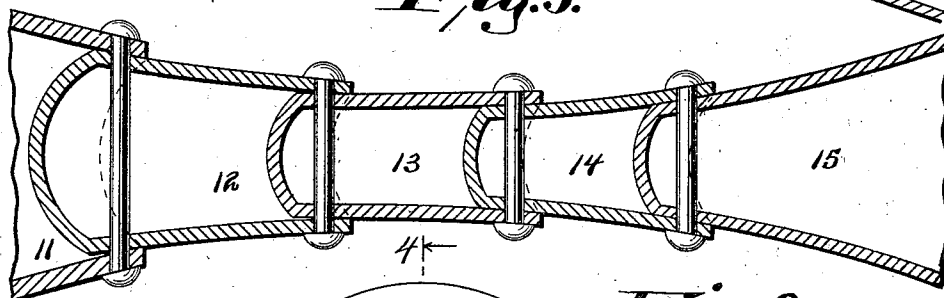
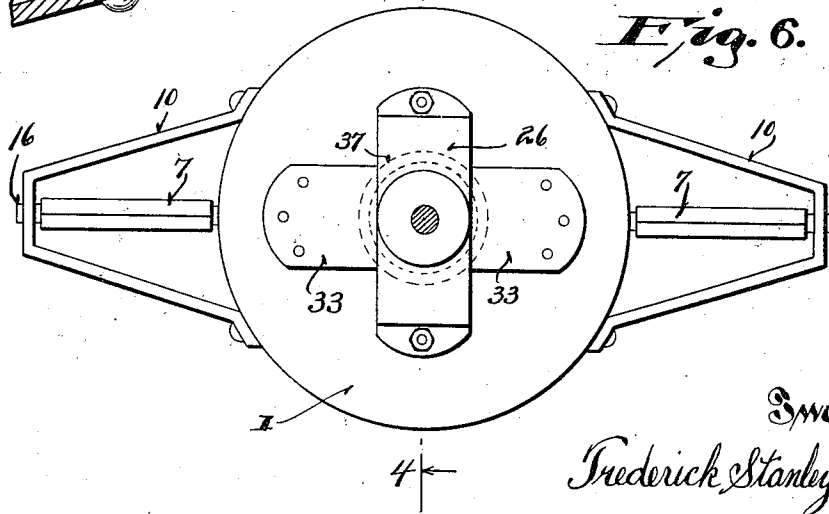


Fig. 6.



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By *Young & Young*
Attorneys

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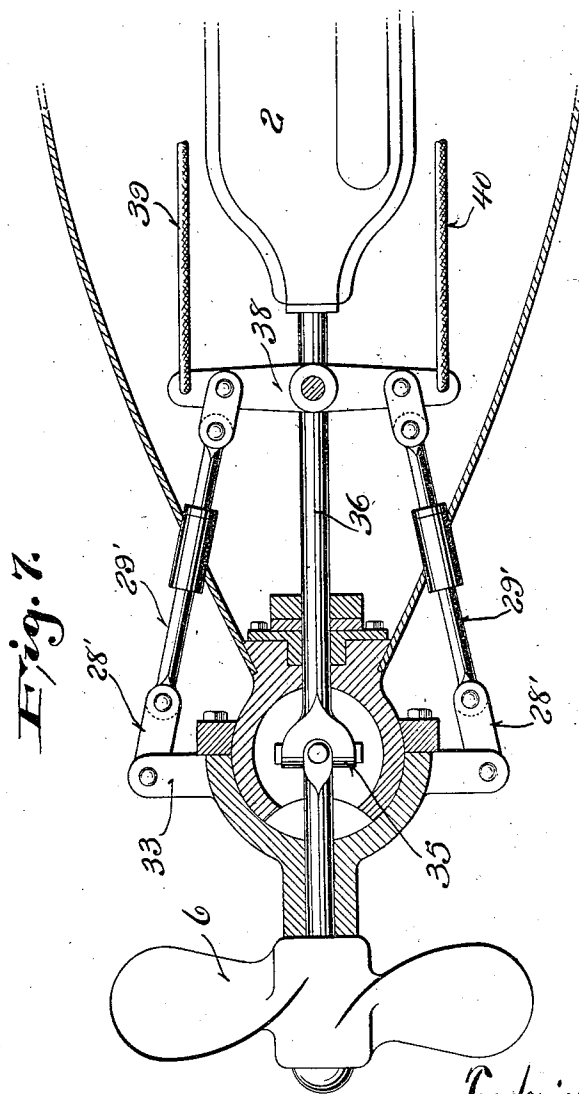
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3 Sheets-Sheet 3



Inventor:

Frederick Stanley Perkins

By *Young & Young*
Attorneys.

UNITED STATES PATENT OFFICE.

FREDERICK STANLEY PERKINS, OF MILWAUKEE, WISCONSIN.

SUBMARINE BOAT.

Application filed September 1, 1921. Serial No. 497,724.

To all whom it may concern:

Be it known that I, FREDERICK STANLEY PERKINS, a citizen of the United States, and resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Submarine Boats; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to certain new and useful improvements in submarine boats and is designed for use in connection with boats of this type which are built for war, sport or commercial purposes.

The general object of the invention is to construct a boat of this kind which may be maneuvered more quickly and easily than those heretofore constructed.

A more specific object of the invention is to provide means for changing the direction in which the propelling power is exerted so that the boat may be submerged or elevated to the surface with the greatest rapidity, guiding fins also being provided to assist in this operation.

A further object of the invention is to provide means by which the boat may be turned around in the smallest possible space and without danger of listing.

The various features of my invention will be more fully understood by reference to the accompanying drawings, in which,

Figure 1 is a longitudinal sectional view through a boat equipped, according to my invention, corresponding to a section on the line 1—1 of Figure 3.

Figure 2 is a side elevation of the same.

Figure 3 is a sectional plan view of the same, corresponding to a section on the line 3—3 of Figure 2.

Figure 4 is a longitudinal sectional view through the bow of the boat and showing a modified form of the invention.

Figure 5 is a sectional plan view through the stern or tail of the boat.

Figure 6 is a transverse sectional view of the form shown in Figure 4 and taken on the line 6—6 thereof, and

Figure 7 is a fragmentary sectional plan view of the bow.

Referring specifically to the drawings, the boat comprises a shell or hull which is substantially in the shape of a fish. Inside this shell, a motor 2 is supported in the bow on a platform which has an extension 5

extending through the nose thereof, and forming a water tight connection about which the platform may be oscillated up and down. A propeller shaft connected with the motor is journaled in the extension 5 and carries a propeller 6 on its forward end in front of the nose of the shell 1. The platform has, at its rear end, a sliding or telescopic connection with a sleeve which is in threaded connection with a vertical shaft 3 which may be rotated by means of the hand wheel 24, which is connected thereto by worm gearing. Thus the rear end of the platform may be raised or lowered by turning the hand wheel 24, whereupon the motor 2 and the propeller shaft will be oscillated about their pivotal connection with the nose of the boat, and thereby change the angle of the propeller so that the power exerted thereby will be exerted in a downwardly or upwardly inclined direction to submerge or to elevate the boat.

The boat is also provided with pairs of fins 7, which are mounted on the respective shafts 16 which extend through the bow and stern respectively. The outer ends of the shaft 16 are guided and supported by the brackets 10, which are secured to the sides of the boat. The fins 7 are normally disposed in horizontal planes so as to guide the boat and maintain it in equilibrium at a uniform depth. When, however, the angle of the propeller shaft is tilted downwardly or upwardly to submerge or emerge, the planes of the fins 7 are simultaneously inclined to facilitate this maneuver. In order that this change in the inclination of the fins may be effected simultaneously with the tilting of the platform, each of the shafts 16 is provided with an arm 17. The arm on the forward shaft 16 is connected by a link 23' with the platform or with the sleeve 41. The platform is connected by a second link with a bell crank 20. This bell crank is connected by a rod 19 with a second bell crank which is also connected by a link 23 to the arm 17 on the rear shaft 16. Thus both pairs of fins are adjusted at the same time and in the same direction as the propeller shaft.

The lower part of the hull is provided with a plurality of compartments 8 for holding water which is used in the usual manner for ballast. Additional propellers 18 may also be provided.

The tail of the boat is formed, as shown, of a number of sections 11, 12, 13, 14 and 15, which are nested together and pivotally connected, as shown in Figure 5. By means of this structure, the tail may be flexed, as shown in dotted lines in Figure 3. Thus the tail not only takes the place of the usual rudder, but forms a substantially uniformly curved stern by means of which the boat may be turned around in the shortest possible space. Means for controlling the position of the tail such as eyes 22, or the like, are secured to the rear section 15 and connected by cables 21 which extend through the sides of the stern at 25 and are carried over suitable sheaves to the pilot's cabin where they are connected to a windlass 4 for operating the same.

In the modification illustrated in Figures 4 and 6, the motor 2 is carried on a stationary platform and a housing 30 is secured in the prow and is provided with a suitable bearing 32 in which the shaft 36 of the motor is journaled. The housing 30 is provided with a spherical head within which is a universal joint 35 which connects the shaft 36 with the propeller shaft on the front end of which is carried a propeller 6. The forward end of the housing is provided with a suitable cap 26 in which the propeller shaft is carried and this cap is slidable up and down, a slot being provided in the end of the housing to permit the propeller shaft to move up and down.

The means for moving the cap 26 on the spherical head comprises a pair of eye bolts 27, or the like, secured to the upper and lower extremities of the cap and connected by links 28 to the rods 29 which are slidably mounted in the sides of the bow and provided with suitable water tight packing. The rear ends of the rods 29 may be suitably connected with the forward shaft 16 so as to operate simultaneously therewith, as will be understood.

The cap 26 is also provided with lateral arms 33 which are movable by means of the links 28' and reciprocable rods 29' which may be moved by means of the crosshead 38 to swing the propeller to either side to turn the boat to the right or left. The crosshead is connected by the cables 39 and 40 to the windlass 4 so as to operate

simultaneously with the flexing of the tail as will be readily understood.

It is to be noted that the tail of the boat is itself a portion of the hull and forms a continuation of the sides thereof. The tail does not present a sharp change of form or shape, but cooperates with the hull to produce a perfectly stream lined body from the tip of the boat to the end of the tail.

I claim as my invention:

1. In a submarine boat, a hull substantially in the shape of a fish and having a flexible tail portion, a rotary propeller carried in front of the hull, means for inclining the axis of the propeller to direct the course upwardly or downwardly, and means for flexing the tail portion of the hull to change the course toward the right or left.

2. A submarine boat having a hull substantially in the shape of a fish and having a flexible tail portion, a shaft extending through the forward end of the hull and having a propeller on its forward end, fins supported on the sides of the hull, means for tilting said shaft and propeller to direct the propelling force downwardly or upwardly, means for simultaneously tilting the fins in the same direction and means for flexing the tail portion of the hull to change the course toward the right or left.

3. A submarine boat comprising a hull formed substantially in the shape of a fish throughout its entire extent, the rear portion of the hull being articulated, means for flexing the rear portion of the hull to thereby steer the boat, a power driven propeller mounted in the front of the boat, a shaft extending from said propeller into the body of the boat and having a universal joint adjacent the prow, a ball and socket member supporting said shaft adjacent the propeller and housing said universal joint, and means for causing relative rocking motion to occur between the members of the ball and socket joint, whereby said propeller may be angularly moved with respect to the axis of the boat.

In testimony that I claim the foregoing I have hereunto set my hand at Milwaukee, in the county of Milwaukee and State of Wisconsin.

FREDERICK STANLEY PERKINS.