C. LAURENTI.

SUBMARINE OR SUBMERSIBLE BOAT.

APPLICATION FILED SEPT. 30, 1908.

922,298. Patented May 18, 1909.

Fig. 1

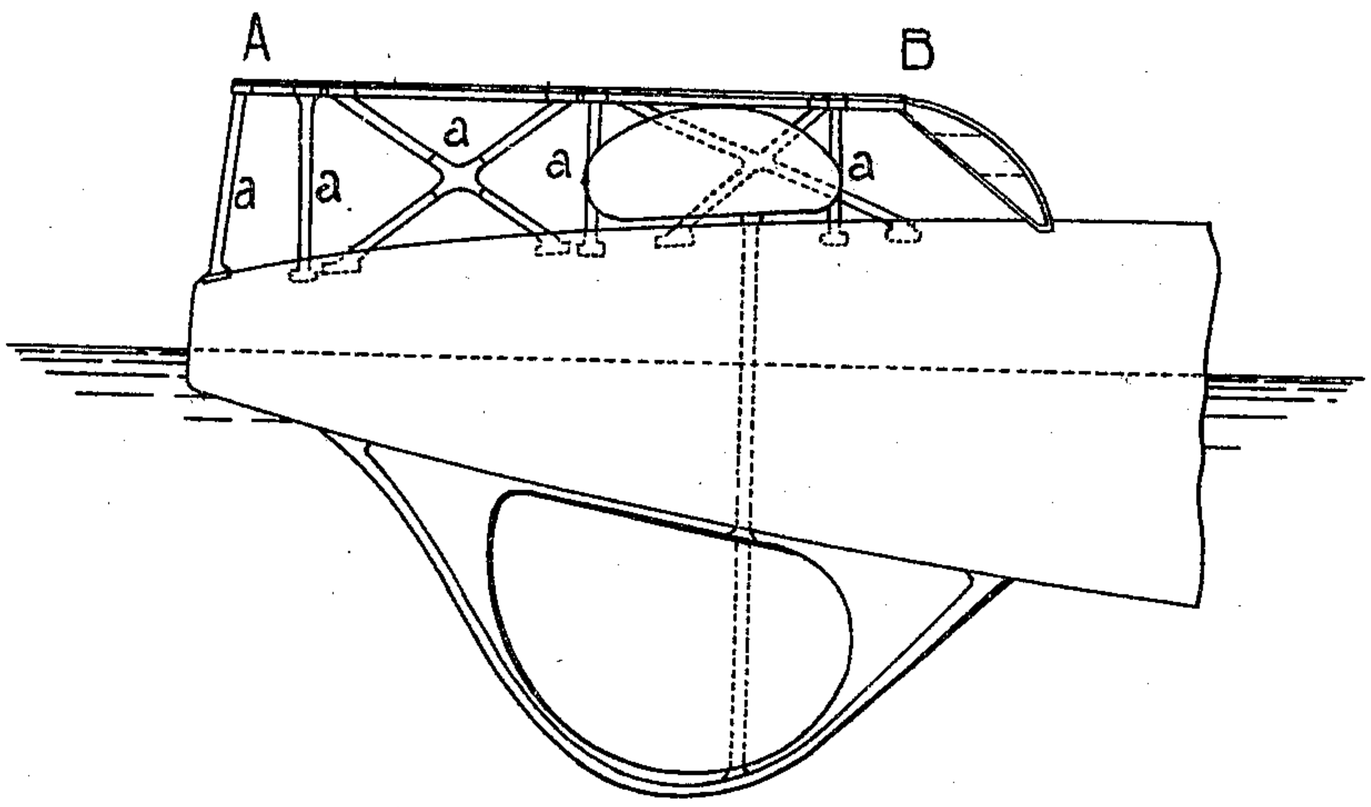
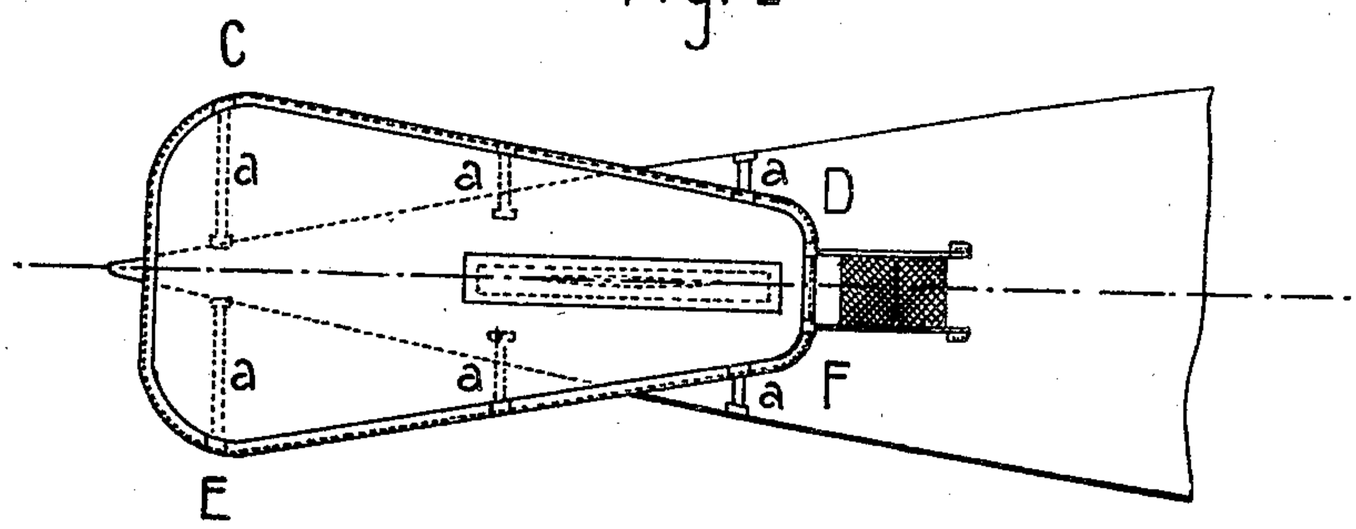


Fig. 2



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SUBMARINE OR SUBMERSIBLE BOAT.

No. 922,298. Specification of Letters Patent. Patented May 18, 1909.

Application filed September 30, 1908. Serial No. 455,512.

To all whom it may concern:

Be it known that I, CESARE LAURENTI, a subject of the King of Italy, residing in Spezia, Muggiano, Italy, engineer, have invented certain new and useful Improvements in Submarine or Submersible Boats, of which the following is a full, clear, and exact specification.

The invention relates to improvements in submarine or submersible boats. It is necessary for such vessels that they should be able to maintain a straight course undisturbed by exterior forces so that while subject only to their own force of propulsion they may follow a constant rectilinear course on the axes of the boat, or in other words there must exist an equilibrium constant in intensity and direction between the resisting force of the water and the force of propulsion. It is well known in naval architecture that this equilibrium is obtained only in the case when the resultant of the resistance of the water meets the resultant of the force of propulsion much to the stern of the line which unites the center of gravity with the center of buoyancy. To obtain this object, both torpedoes and submarines or submersibles, having cigar shaped and other hulls have been provided at their extreme stern, with horizontal sheets which in the case of the boat tending to deviate from the direction of her course, automatically right her by creating a strong resistance astern. However all that has been devised up to now for this object are horizontal sheets, which are always submerged when the submersible is navigating above water and therefore cause a resistance to its propulsion not necessary to navigating on the surface and prejudicial to its speed.

The object of the present invention is to provide a submarine or submersible with a stern horizontal surface which will remain above water during the surface navigation and thus will not oppose any resistance to the impulse of the boat and at the same time will in submerged navigation create a strong resistance to the boat's impulse when it deviates from a straight course.

In the drawings Figure 1 is an elevation of a stern portion of a submarine or submersible boat, and Fig. 2 is a plan.

The horizontal surface A B (Fig. 1) consists of a sheet or sheets of metal or other material of suitable shape and surface, attached to the hull by brackets or other devices *a*, and placed at such a height above the level of the water as not to be subject to the force of the waves or in any way disturb the boat when it is navigating on the surface in a rough sea. In the plan is seen the external line C D E F on a horizontal planes of the above mentioned surface A B the rear portion of the plane being extended laterally a distance materially beyond the portion of the hull which is below the plane. The arrangement of the horizontal surface in question has the advantage that it can be altered or repaired at will without the necessity of putting a boat in dock and can also be used as a protection for the rudder or as a platform convenient for the crew during navigation above water. In place of being horizontal the surface may be inclined or capable of being inclined as desired.

Having now particularly described and ascertained the nature of the said invention and in what manner the same is to be performed I declare that what I claim is:

1. In combination with a boat for submarine or submersible navigation, a permanently attached plane surface at the stern arranged above the propelling means and at such a height above the line of flotation when the boat is navigating above water as not to be subject to the force of the waves, substantially as described.

2. In combination with a boat for submarine or submersible navigation, a horizontal surface at the stern arranged above the propelling means and at such a height above the line of flotation when the boat is navigating above water as not to be subject to the force of the waves, substantially as described.

3. In combination with a boat for submarine or submersible navigation, a horizontal sheet A B attached to the hull of said boat by brackets *a* and located above the stern of the boat and above the line of flotation during surface navigation, and provided with means of access directly from the top of the hull, substantially as described.

4. In combination with a boat for submarine or submersible navigation, a horizontal sheet A B attached to the hull of

said boat and located above the stern of the boat and above the line of flotation during surface navigation and having its rear portion extended laterally a distance materially beyond the portion of the hull below said sheet.

In witness whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

CESARE LAURENTI.

Witnesses:
ANGELO BORAGINO,
C. A. FERRARI.