No. 708,553. Patented Sept. 9, 1902.

J. P. HOLLAND.

SUBMARINE BOAT.

(Application filed Aug. 7, 1901.)

(No Model.) 2 Sheets—Sheet 1.

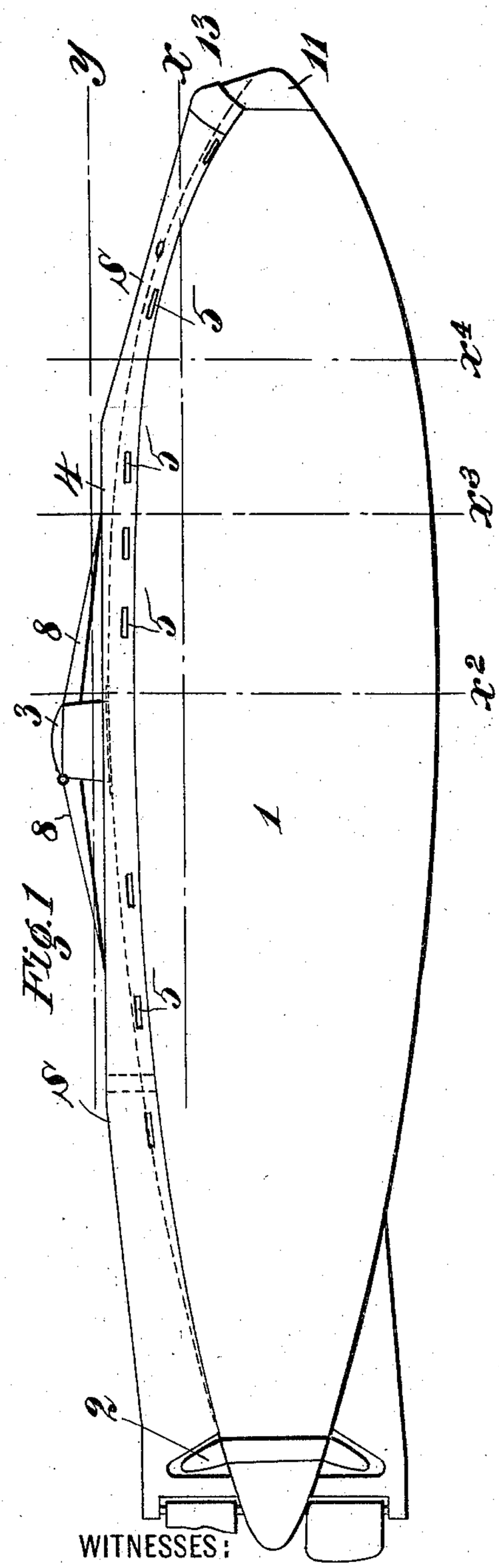

Fig. 1

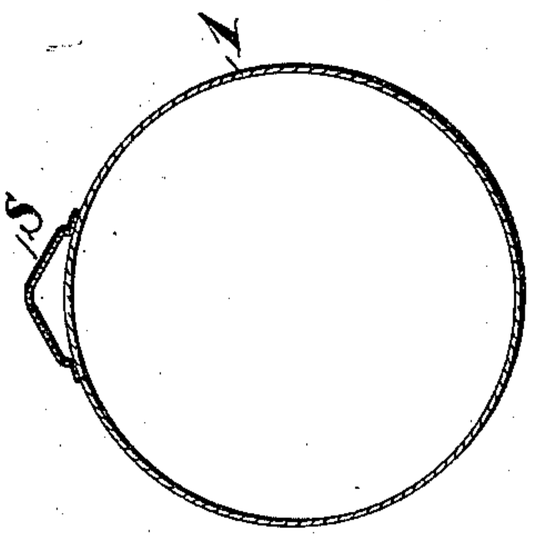

Fig. 4

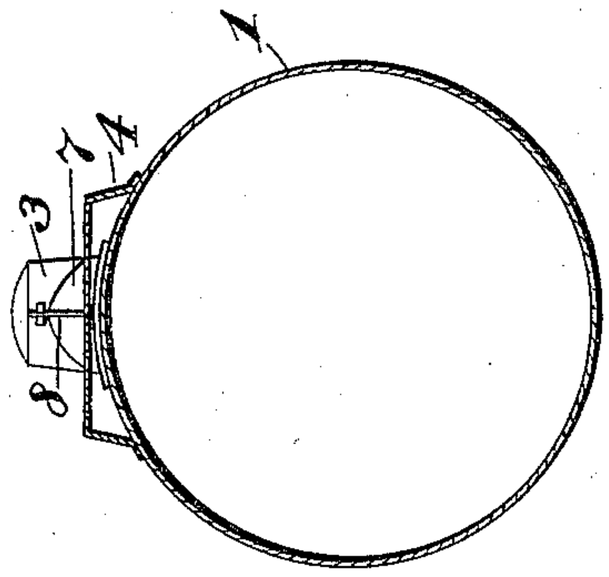

Fig. 3

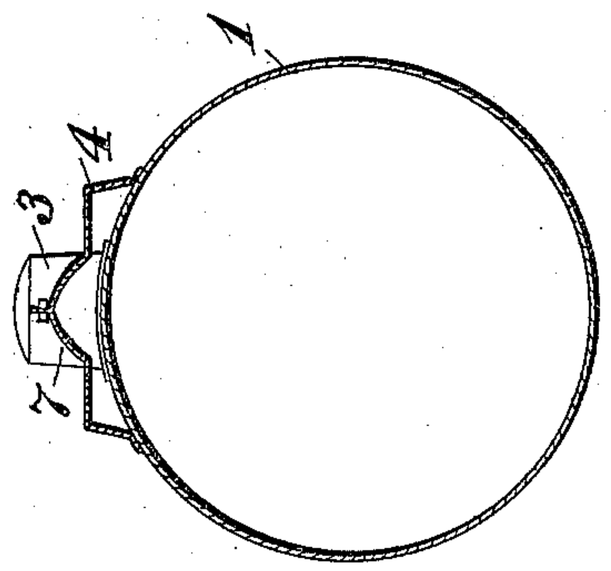

Fig. 2

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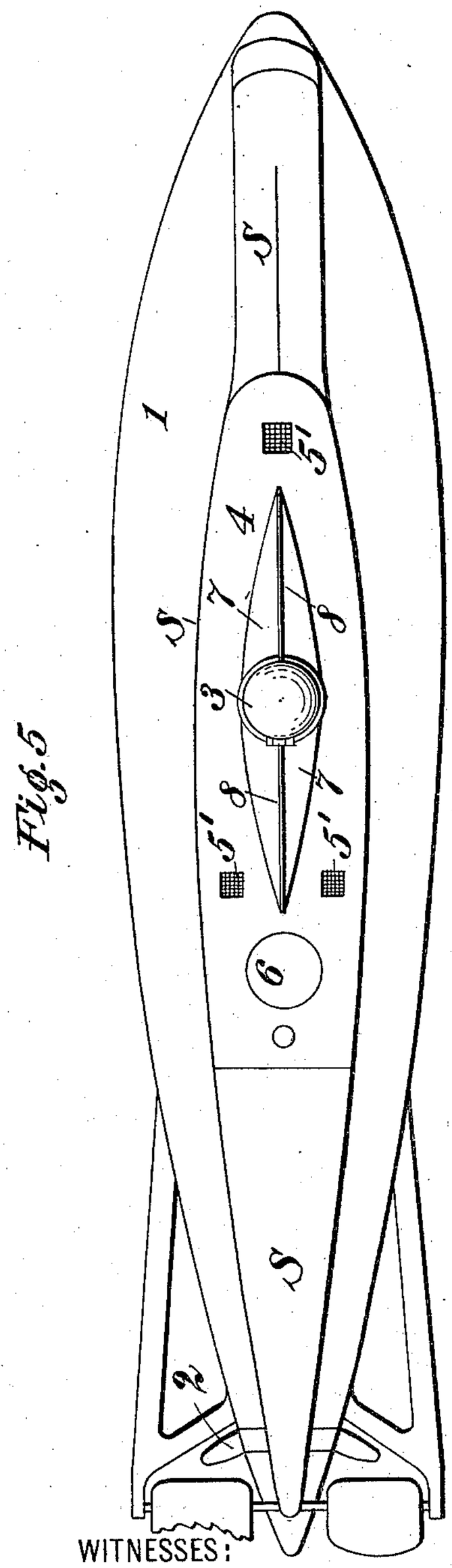

Fig. 5

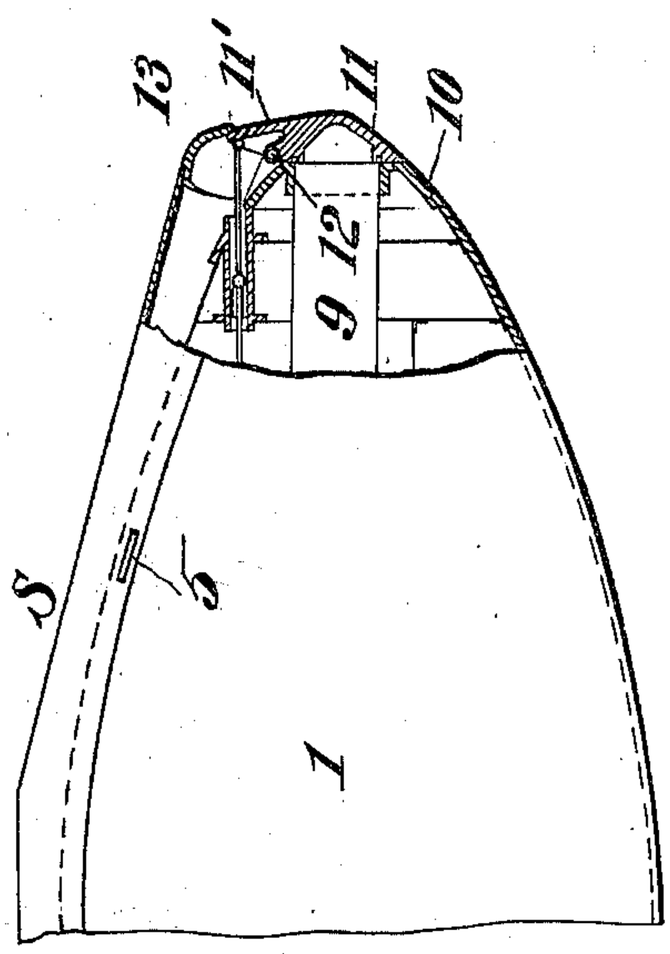

Fig. 7

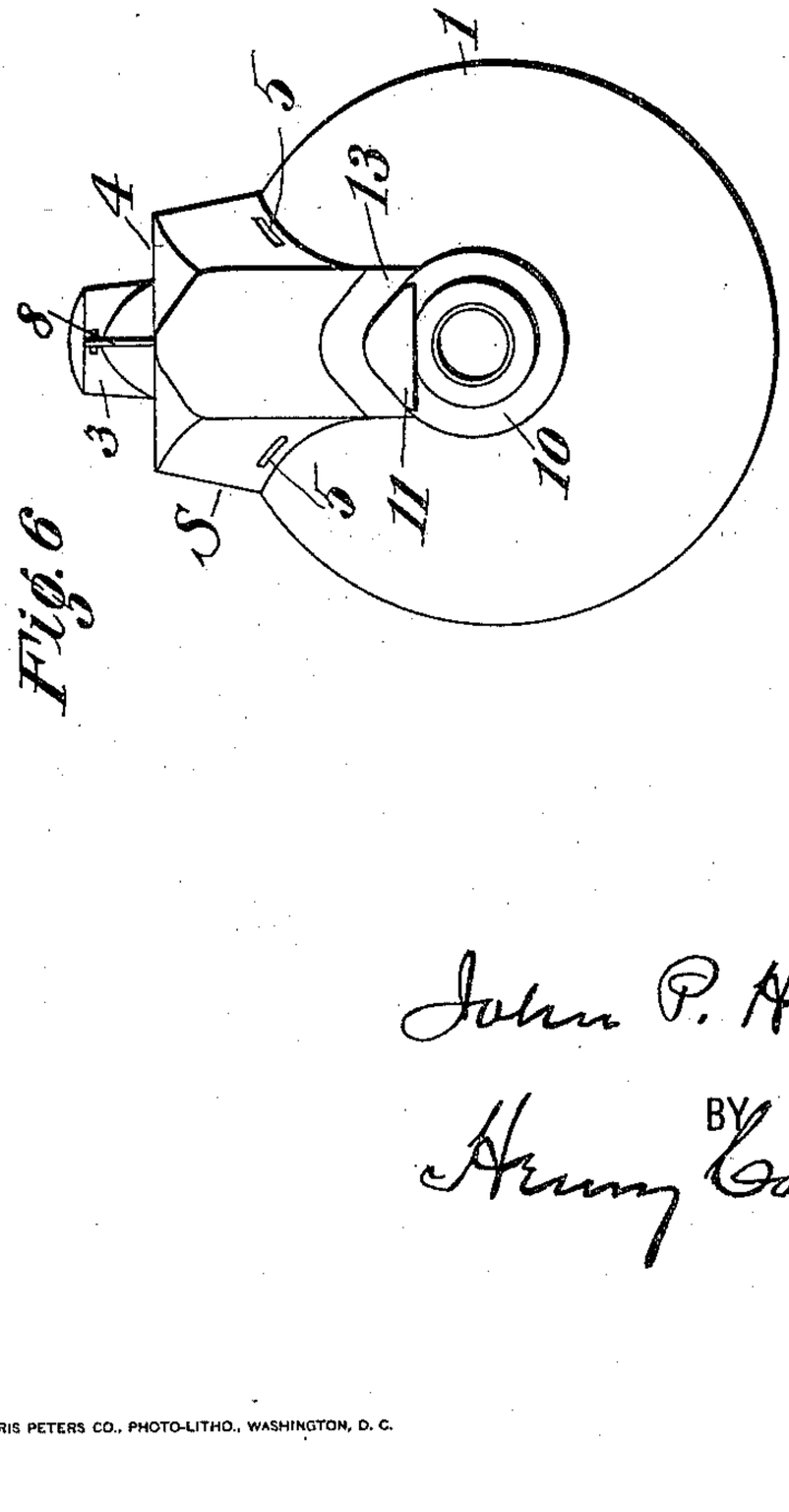

Fig. 6

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JOHN P. HOLLAND, OF NEWARK, NEW JERSEY.

SUBMARINE BOAT.

SPECIFICATION forming part of Letters Patent No. 708,553, dated September 9, 1902.

Application filed August 7, 1901. Serial No. 71,130. (No model.)

To all whom it may concern:

Be it known that I, JOHN P. HOLLAND, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Submarine Boats, of which the following is a specification.

This invention relates to the class of boats or vessels which are adapted to be operated or maneuvered both on the surface of the water and submerged; and the object is, in the main, to provide the boat, which will have the known spindle form or contour, with a deck or promenade for the crew when the boat is operating on the surface and such a superstructure for this purpose as will permit the boat to dive and operate submerged without impediment or hindrance.

In the accompanying drawings, which illustrate the invention embodied, Figure 1 is a side elevation of a submarine boat. Figs. 2, 3, and 4 are transverse sections of the same at the points in Fig. 1 indicated, respectively, by the lines x^2, x^3, and x^4. Fig. 5 is a plan of the boat. Fig. 6 is a bow end view of the boat, showing the cap of the expulsion-tube open. Fig. 7 is a sectional side elevation of the bow portion of the boat, showing the construction of the hinged cap of the expulsion-tube and the superstructure at the bow.

1 designates the spindle-shaped hull or body of the boat, 2 the propeller, and 3 the turret or conning-tower. These are or may be of the usual or known construction. In Fig. 1 the line x designates the water-level when the boat is adapted for surface running, and the line y designates the water-level when the boat is ballasted to put it awash or in diving condition.

On the rounded back or top of the boat is built and rigidly secured a hollow superstructure S, having a flat deck or promenade 4 extending both forward and aft of the conning-tower. This superstructure toward the bow has the form in cross-section seen in Fig. 4—that is, its top slopes off at each side from a central ridge in a vertical plane coincident with the axis of the boat; but at the bow it is arched, as seen in Fig. 6. Along the sides of the superstructure are scuppers 5 for the free escape of the water from the superstructure when the boat comes to the surface, and in the deck 4 are gratings 5′, one or more, to permit the air to escape as the boat sinks beneath the surface. In the superstructure is shown a well 6 for a coil of rope, and about the conning-tower, fore and aft, is a rounded structure 7 above the deck 4 and sloping from the tower down to the deck. In a vertical plane passing through the longitudinal axis of the boat are thin fins 8, which abut against the conning-tower. The upper edges of these fins slope from the top of the tower down to the deck 4 and serve as skids to carry a hawser or line over the tower and prevent fouling. The purpose of this superstructure is in part to provide a deck and promenade for the crew, to afford a cover and protection for ventilators, relief-valves, exhaust-pipes, and mufflers, which are on the outside of the upper surface or back of the hull of the boat, and to provide a convenient stowage-space for the anchor, cable, and mooring-lines.

The construction at the bow of the boat is seen in Figs. 6 and 7.

9 is the expulsion-tube, and 10 the muzzle-casting, where the said tube and the boat-hull are joined.

11 is the cap of the expulsion-tube, coned to form the bow-tip or nose of the boat and hinged to the casting 9 at 12. On the front or bow end of the superstructure is a strong metal hood 13, which takes over and protects the shield-plate 11′ of the cap 11 and houses the operating-gear of the cap. This hood not only protects the operating-gear of the cap, but it serves as a fender to prevent the accidental opening of the cap from collision with a dock or floating object. When the boat sinks, the water freely enters and fills the superstructure, and when the boat rises the water flows out freely. This construction avoids the necessity of providing an excess of water-ballast space in the interior of the boat to overcome or neutralize the buoyancy if the superstructure were made water-tight. The superstructure S extends the entire length of the boat from stem to stern, and the purpose in giving to it the inverted-V form seen in Fig. 4 is to reduce resistance in moving through the water. This also is the object of the

rounded structures 7 in front and rear of the conning-tower. They serve to part the water as the boat is running.

Having thus described my invention, I claim—

1. A submarine boat provided on its top or rounded back with a hollow superstructure having a flat, level promenade both forward and aft of the conning-tower, and having sloping portions extending from said level promenade down to the stem and stern of the boat, said hollow superstructure having at its sides always-open scuppers for the flow of water in and out, and having in its top always-open gratings for the flow of air in and out, substantially as set forth.

2. A submarine boat having on its top or rounded back a hollow superstructure with apertures for the free flow of water into and out of same, a conning-tower which extends up through said superstructure, the inclined structures, and the sloping fins 8 on the superstructure and abutting against the said tower to prevent the fouling of lines, substantially as set forth.

3. The combination with a submarine boat of spindle form and having an expulsion-tube, a muzzle-casting, and a cap 11 hinged to said casting and provided with a shield-plate 11′, of the hollow superstructure on the boat, provided with a hood 13 which houses the operative mechanism of the cap and the shield thereof, substantially as set forth.

4. A submarine boat having on its rounded top or back a hollow superstructure extending the entire length of the boat and open at all times for the outflow and inflow of air or water, said superstructure having at its middle part a flat, level, promenade-deck, and at its forward end an inverted-V form so as to reduce resistance in moving through the water, as set forth.

In witness whereof I have hereunto signed my name, this 30th day of July, 1901, in the presence of two subscribing witnesses.

JOHN P. HOLLAND.

Witnesses:
PETER A. ROSS,
K. M. CAPLINGER.