(No Model.)

2 Sheets—Sheet 1.

A. W. SAVAGE.

MARINE TORPEDO.

No. 456,278. Patented July 21, 1891.

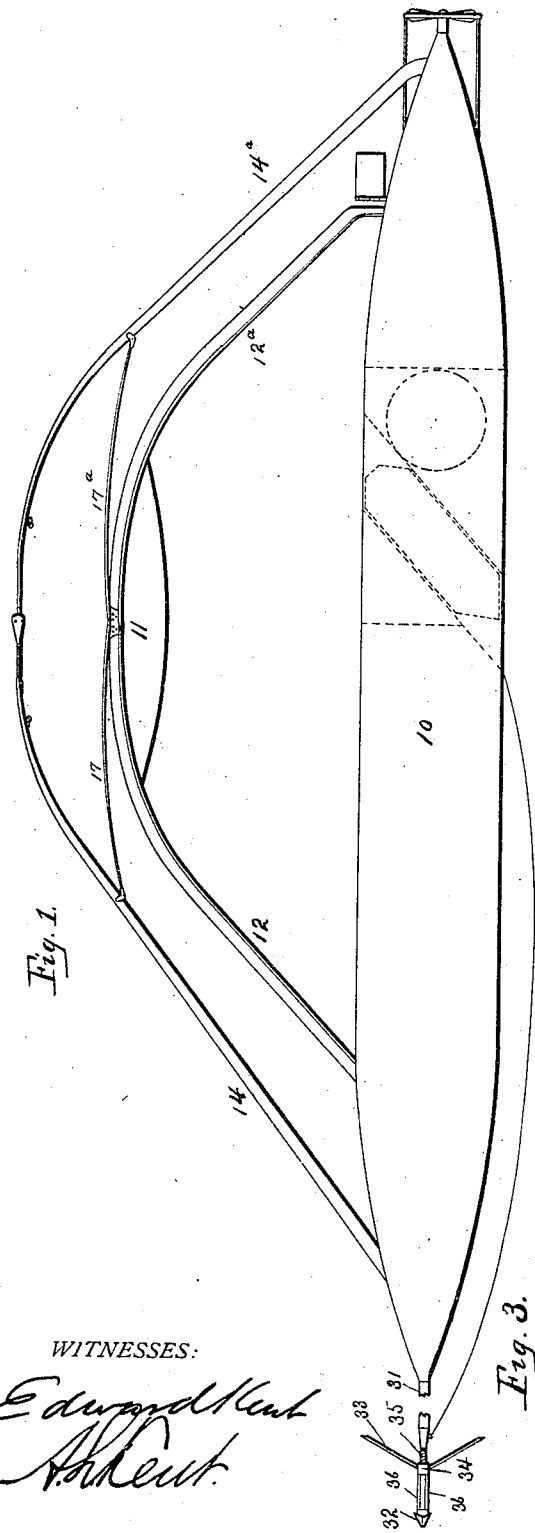

Fig. 1.

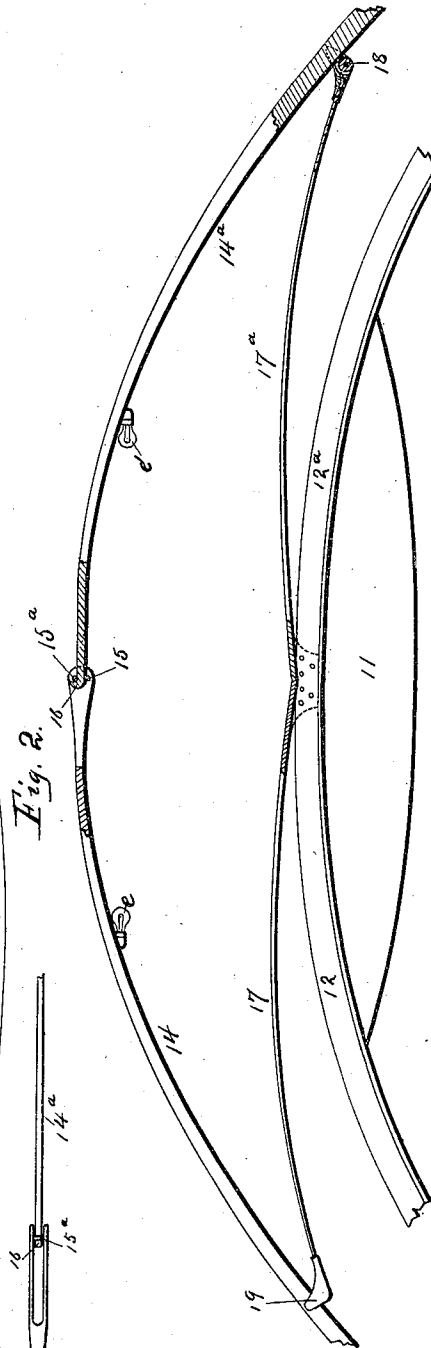

Fig. 2.

Fig. 3.

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(No Model.) 2 Sheets—Sheet 2.

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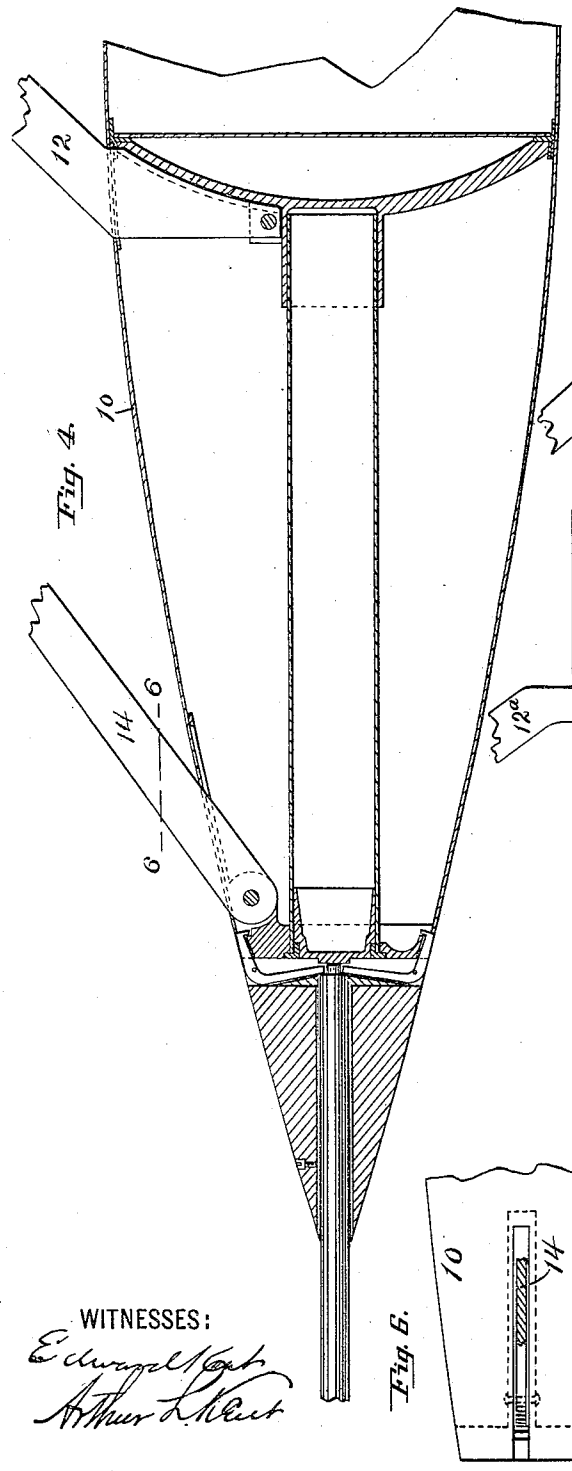

Fig. 4.

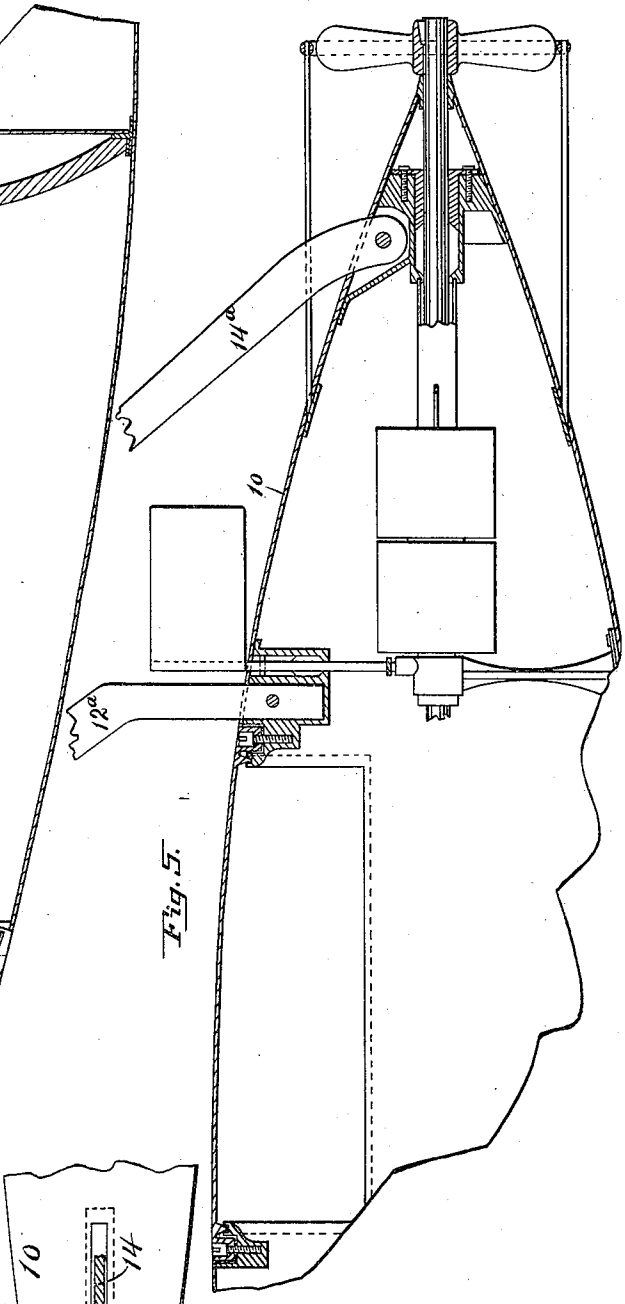

Fig. 5.

Fig. 6.

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ARTHUR WILLIAM SAVAGE, OF BAY RIDGE, NEW YORK, ASSIGNOR TO THOMAS H. THOMAS, OF SAME PLACE.

MARINE TORPEDO.

SPECIFICATION forming part of Letters Patent No. 456,278, dated July 21, 1891.

Application filed September 27, 1890. Serial No. 366,325. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR WILLIAM SAVAGE, a subject of the Queen of Great Britain, at present residing at Bay Ridge, in the county of Kings and State of New York, have invented certain new and useful Improvements in Marine Torpedoes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to the mechanical construction of torpedo-boats of the class wherein the hull proper is submerged, but supported at a suitable distance below the surface by a float, the main objects of the invention being to provide for the protection of the float in case obstructions are encountered as the boat is advanced in action, and to provide for the safe storage and support of the signal-lights; and to the ends named the invention consists, essentially, of a hull that is provided with a float and guard-arms that extend above the float and are adapted to support signal-lights.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar reference-figures indicate corresponding parts in all the views.

Figure 1 is a side view of a torpedo-boat embodying my invention. Fig. 2 is an enlarged view of the float, a portion of its arched support, and a portion of the float-guard, parts being broken away and parts being shown in section. Fig. 3 is a detail plan view of a portion of the float-guard. Fig. 4 is an enlarged central longitudinal sectional view of the forward portion of the torpedo-boat, the view being given to illustrate the connection between the hull, the guard-arms, and the float-supports. Fig. 5 is a similar view of the stern of the boat, and Fig. 6 is a sectional plan view on line 6 6 of Fig. 4.

In the drawings above referred to, 10 represents the hull, and 11 the float, said float being supported by arched bars 12 and 12^a, that are rigidly supported in castings 13 and 13^a. The float 11 is preferably formed of sheet metal and filled with any buoyant substance, such as cork or lamp-black. Just abaft the bow and just forward of the stern I pivotally mount arms 14 and 14^a, that extend upward and over the float 11, the upper end of the arm 14 being bifurcated and provided with guide-pins 15 and 15^a, between which the end of the arm 14^a extends, said end being formed with a hook or stop 16, which prevents the arms from separating. The arms 14 and 14^a constitute a guard for the float 11, and are normally upheld by spring-arms 17 and 17^a, that are rigidly connected to the arched arms 12 and 12^a, each of these arms 17 and 17^a being provided at its end with an anti-friction roller, as 18, said rollers bearing upon the under sides of the arms 14 and 14^a, and in order that the spring-arms may be held from lateral displacement I provide each arm with lips 19, which overlap the sides of the arms 14 and 14^a.

From the construction above described it will be seen that if any floating obstruction—such as a log or raft—be encountered as the boat is moving forward the arm 14 will be depressed against the tension of its spring 17 and will be gradually carried downward, the momentum of the boat being gradually checked and the movement of the two arms 14 and 14^a being sufficient to permit of their moving close down upon the float-supports 12 and 12^a, and consequently the boat will pass forward beneath the obstruction.

In case operations are carried on at night it is desirable that some provision be made for tracing the course of the boat; and to this end I mount signal-lights *e e'* beneath the guard-arms 14 14^a, and I find in practice that this arrangement has many advantages over the ordinary signal-staff employed in other submarine torpedoes.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the hull of a torpedo-boat, of a float connected thereto and a yieldingly-mounted guard-arm that extends from the hull upward and above the float.

2. The combination, with the hull of a torpedo-boat, of a float arranged directly above said hull and yieldingly-mounted guard-arms that extend from the hull over and above the float.

3. The combination, with the hull of a tor-

pedo-boat, of a float rigidly connected thereto and yieldingly-mounted guard-arms that extend from the hull upward and over the float.

4. The combination, with the hull of a torpedo-boat, of a float connected thereto and yieldingly-mounted guard-arms that extend from the hull upward and over the float and interlock at their upper ends.

5. The combination, with the hull of a torpedo-boat, of a float connected thereto, guard-arms that extend from the hull above the float, and springs arranged in connection with the guard-arms.

6. The combination, with the hull of a torpedo-boat, of a float connected thereto, guard-arms that are pivotally connected to the hull ends and extend upward and over the float and interlock at their upper ends, spring-arms carried by the float, and anti-friction wheels carried by the spring-arms and arranged to bear on the guard-arms, substantially as described.

7. The combination, with the hull of a torpedo-boat, of a float connected thereto, guard-arms that are pivotally connected to the hull ends and extend upward and over the float and interlock at their upper ends, spring-arms carried by the float, anti-friction wheels carried by the spring-arms and arranged to bear on the guard-arms, and lips also carried by the spring-arms and arranged to overlap the sides of the guard-arms.

8. The combination, with the hull of a torpedo-boat, of a float connected thereto, a guard-arm that extends above the float and is formed with a bifurcated upper end, pins which connect the members of the bifurcated end, a second guard-arm that is connected to the hull and extends upward and over the float and enters the space between the members of the bifurcated end and the pins, and springs arranged in connection with the guard-arms.

9. The combination, with the hull of a torpedo-boat, of arched arms rigidly connected thereto, a metallic float carried by the arms and filled with a buoyant material, such as cork, guard-arms that extend above the float, and springs arranged in connection with the guard-arms.

10. The combination, with the hull of a torpedo-boat, of a float connected thereto, yieldingly-mounted guard-arms that extend from the hull upward and over the float, and signal-lights carried by said arms.

In testimony whereof I affix my signature in presence of two witnesses.

ARTHUR WILLIAM SAVAGE.

Witnesses:

WM. A. PROESCHOLDT,

HENRY J. BENSON.