

(No Model.)

2 Sheets—Sheet 1.

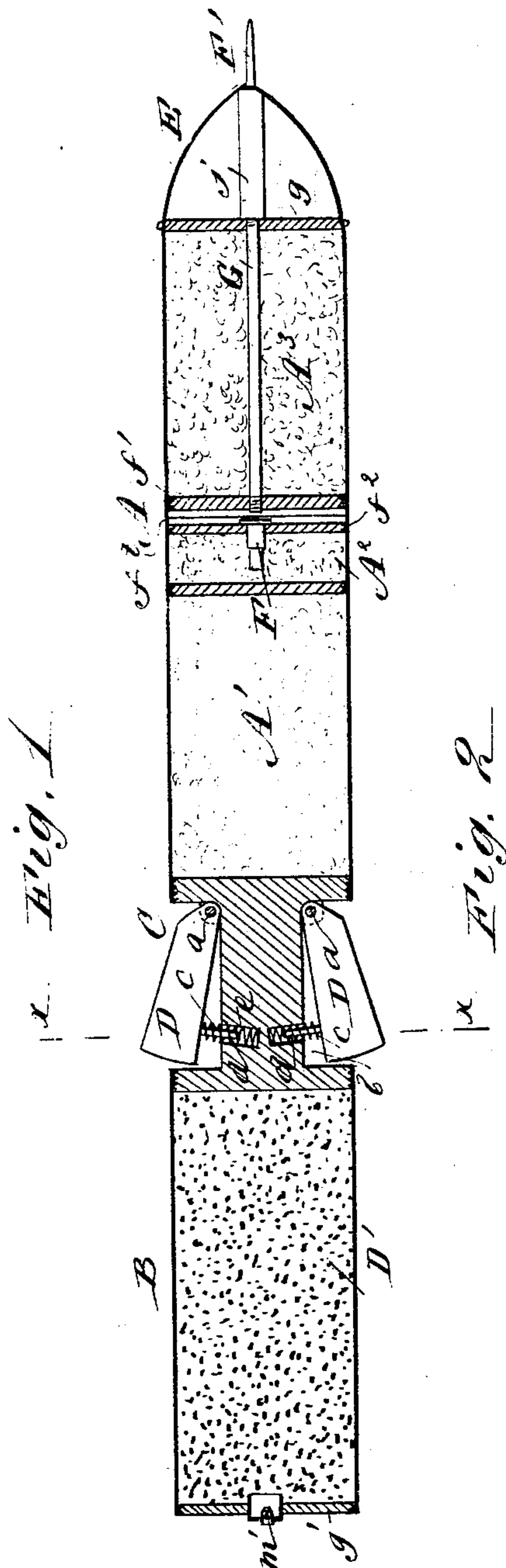
2 Sheets—Sheet 1.

T. SULLIVAN & E. L. ETHERIDGE.

SUBMARINE TORPEDO.

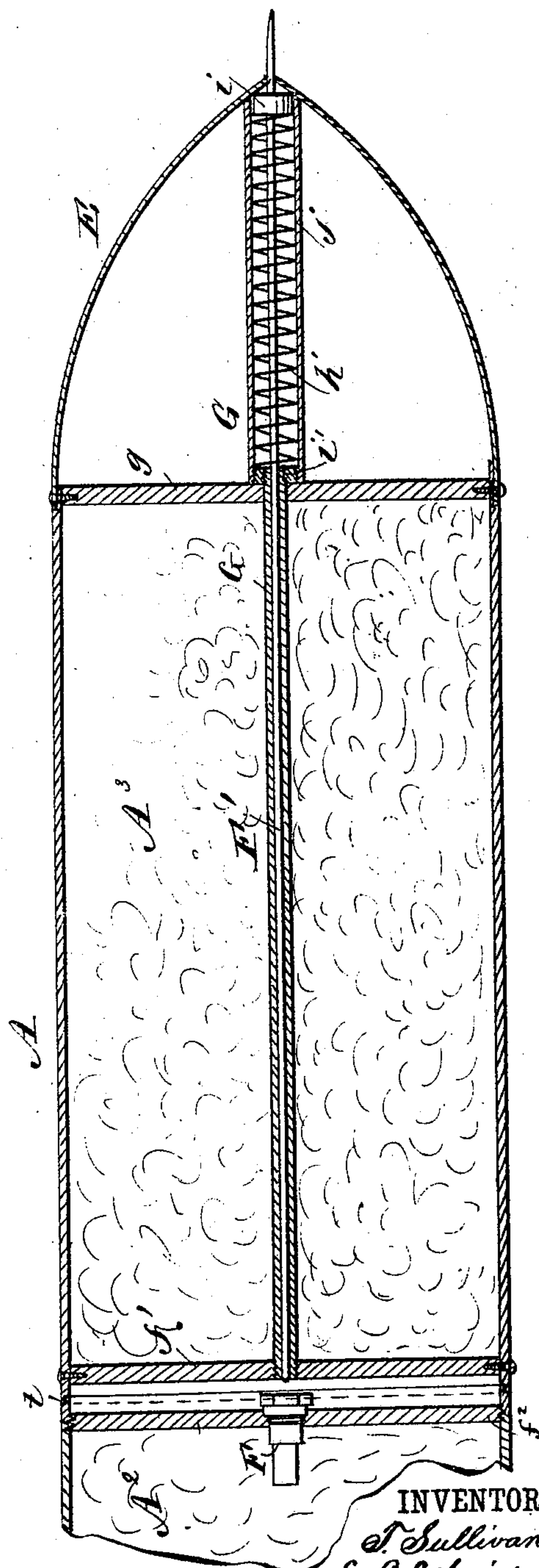
No. 370,570.

Patented Sept. 27, 1887.



WITNESSES:

C. Nevada
C. S. Swagwick



INVENTOR:

T. Sullivan
E. L. Etheridge
Munn & Co.
ATTORNEYS.

BY

ATTORNEYS.

(No Model.)

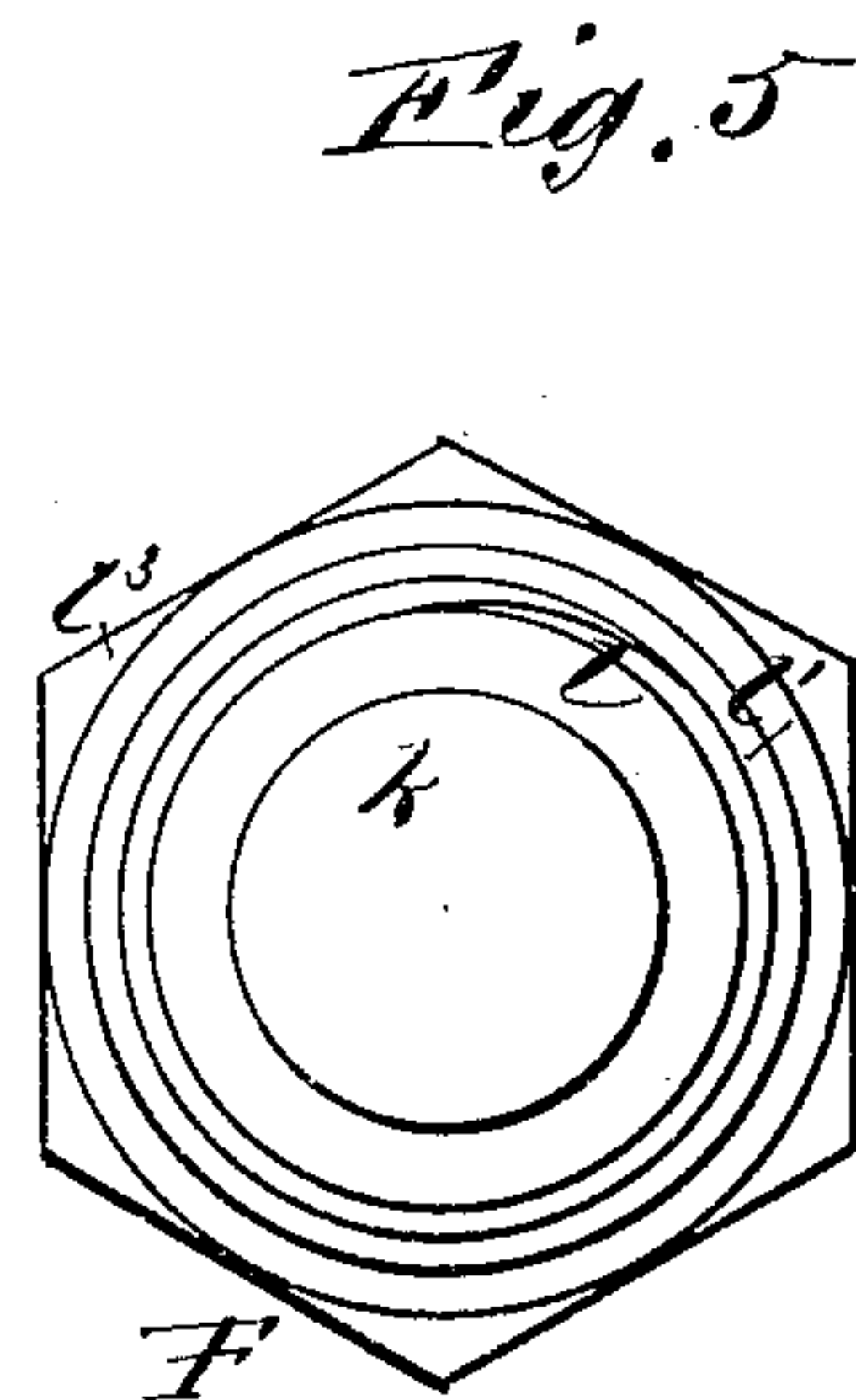
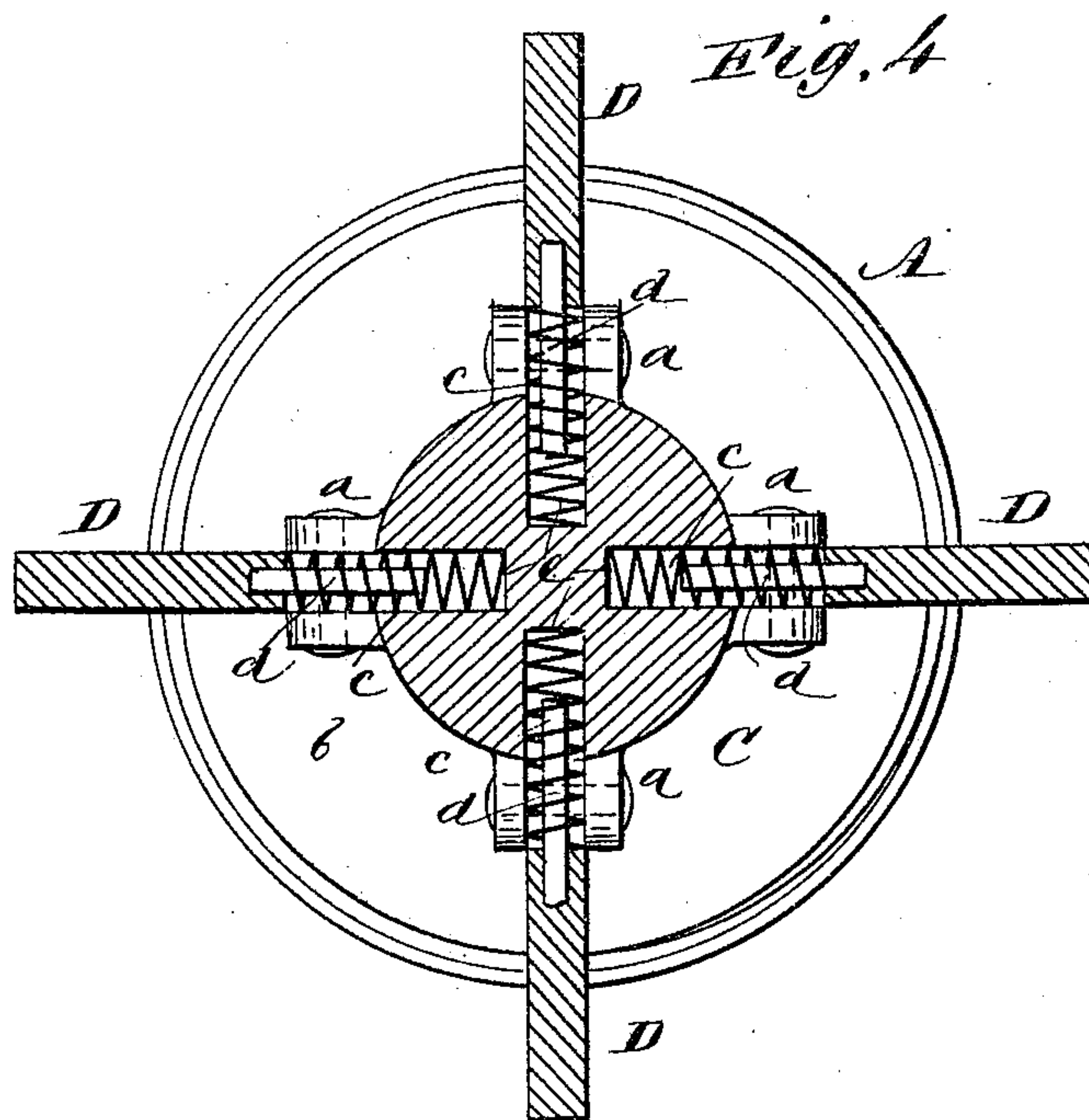
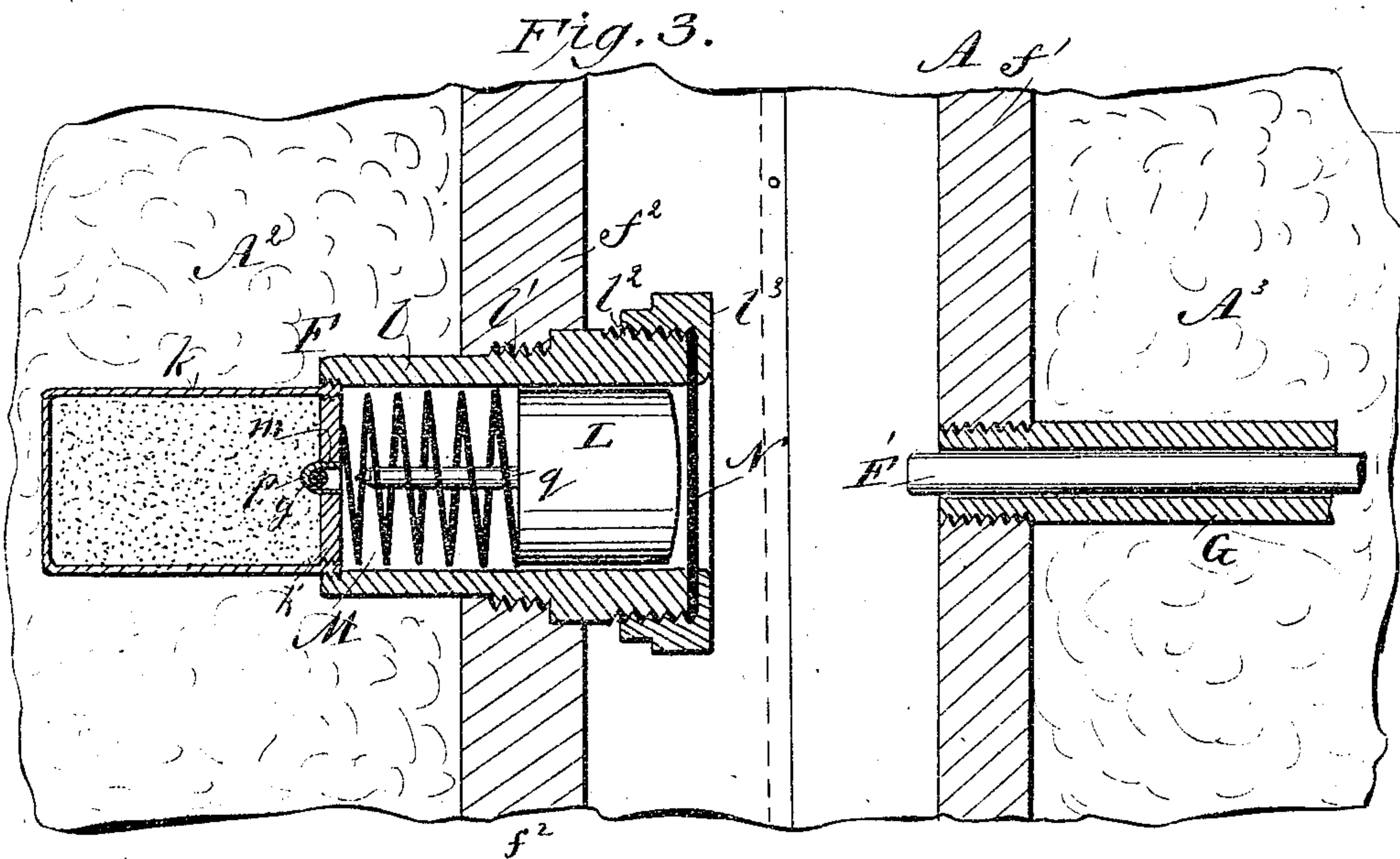
2 Sheets—Sheet 2.

T. SULLIVAN & E. L. ETHERIDGE.

SUBMARINE TORPEDO.

No. 370,570.

Patented Sept. 27, 1887.



WITNESSES:

C. Neveu
C. Sedgwick

INVENTOR:

T. Sullivan
E. L. Etheridge

BY

Munn & Co.

ATTORNEYS.

UNITED STATES PATENT OFFICE.

TIMOTHY SULLIVAN AND ERNEST L. ETHERIDGE, OF NEW YORK, N. Y.

SUBMARINE TORPEDO.

SPECIFICATION forming part of Letters Patent No. 370,570, dated September 27, 1887.

Application filed March 10, 1887. Serial No. 230,395. (No model.)

To all whom it may concern:

Be it known that we, TIMOTHY SULLIVAN and ERNEST L. ETHERIDGE, of the city, county, and State of New York, have invented a new and Improved Submarine Torpedo, of which the following is a full, clear, and exact description.

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

Figure 1 is a longitudinal sectional elevation of our new and improved submarine torpedo. Fig. 2 is an enlarged sectional elevation of the front end of the torpedo. Fig. 3 is an enlarged sectional view of the central portion of the torpedo, showing the cartridge for igniting the charges of explosives carried by the torpedo. Fig. 4 is an enlarged transverse sectional elevation taken on the line xx of Fig. 1, and Fig. 5 is an end view of the cartridge.

The invention will first be described in connection with the drawings, and then pointed out in the claims.

The casing of the torpedo is composed of two main cylindrical sections, the front section, A, and the rear section, B, both connected to the central section, C. The rear section, B, is filled with a charge, D', of rocket composition, which, in burning, rapidly generates a gas which is ejected rearward and acts upon the water and drives the torpedo forward with great force through the water. The torpedo in its passage through the water is kept to its course by the radially-arranged rudders D, pivoted at a in slots or an annular recess, b , in the central solid section, C, and which are forced outward at their rear ends by coiled springs c , placed upon guide-pins d , and held in sockets e , made in the section C.

The front section, A, of the body of the torpedo is divided by the partitions $f f'$ into three chambers, $A' A^2 A^3$. The chamber A^3 is closed at the front by the plate g , and over this is placed the conical point or cap E, to facilitate the passage of the torpedo through the water. The chambers $A' A^3$ are both charged with gun-cotton or other violent explosive. The small central chamber, A^2 , is charged with dry gun-cotton powder, which is to be ignited by a cartridge, F, and the firing pin or rod F',

which latter projects at the front end of the torpedo, so as to be driven backward by contact with the object against which the torpedo is projected. The pin or rod F' is held in a tube or casing, G, held in the partitions $f' g$, and is held pressed forward by a coiled spring, h , in the enlarged portion j of the tube or casing G, said spring acting between the collar i on the rod or pin and the head i' of the main or smaller portion of the tube or casing G. The cartridge F is held in a cross-piece or partition, f^2 , between the partitions $f f'$, and is composed of the thimble k for fulminate and the main casing l , formed with the screw-threads l' for holding it in the partition f^2 and the screw-threads l'' for receiving the annular cap p . The thimble k is closed by a plate, k' , and in an orifice, m , in the center of the plate is placed a percussion-cap, q , adapted to be exploded by the firing-pin q of the plunger L, when the same is forced backward by the backward thrust of the rod F'. The plunger L is held pressed forward by a spring, M, placed in the casing l of the cartridge, and all possible entrance of water to the cartridge is prevented by the diaphragm N, preferably of soft rubber placed over the open end of the casing l , and held by the annular screw-cap t , screwed upon the said casing, as shown clearly in Fig. 3.

When the torpedo is projected from a gun or other device for giving it its first impetus, the fuse or cap m' in the end plate, g' , is ignited, which will ignite the charge D of rocket composition, the burning of which generates the propulsion-gas, which, acting upon the water, forces the torpedo through the water. When the point of the rod F' strikes any object—the hull of a vessel, for example—said rod will be forced backward, which will cause its inner end to penetrate the diaphragm M and strike the plunger L, which will in turn be forced backward and cause its firing-pin q to explode the cap p , which will explode the cartridge and ignite the charge in the chamber A^3 , the explosion of which will explode the charges in the two chambers $A' A^3$, and cause the torpedo to do its work of destruction.

To facilitate storage and handling of the torpedo we make a joint, t , in the front section, A, between the partitions f' and f^2 , so

that the said front section is in two parts, which need not be united until the torpedo is required for use.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A submarine torpedo, comprising two independent casings, A B, united by a section, C, which separates the chambers of the casing A B, and provided with rudders, the front casing being charged with explosive, and provided with means for igniting the same by the impact of the torpedo, the rear casing, B, being charged with rocket composition, substantially as described.

2. The front casing, A, made in two parts or sections closed by the partitions f' f^2 , and jointed together between said partitions, in combination with the partition f , which forms the two explosive chambers A' A², substantially as described.

3. The casing A, made in two parts or sections, the front section being provided with partitions and with the tube G, the rear section being provided with the partition f^2 , having the cartridge fitted in it, in combination with the rod F', held in the tube G and acted upon by a spring, H', for normally holding the rod out of contact with the cartridge, substantially as described.

4. The casing A, provided with the partition f^2 , and the casing l , fitted in the partition f^2 , and having the cartridge k secured to its rear end, in combination with the firing-pin L, inclosed by the casing l and protected from dampness by the thin diaphragm N, substantially as described.

TIMOTHY SULLIVAN.

ERNEST L. ETHERIDGE.

Witnesses:

H. A. WEST,

EDGAR TATE.