

(No Model.)

T. M. BRASHER.

MANIPULATING AND FIRING MARINE TORPEDOES;

No. 287,221.

Patented Oct. 23, 1883.

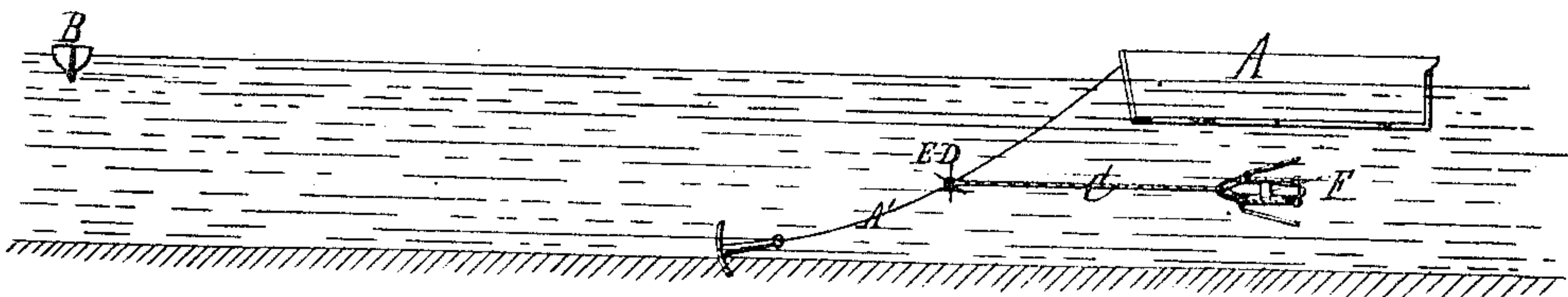


Fig 1.

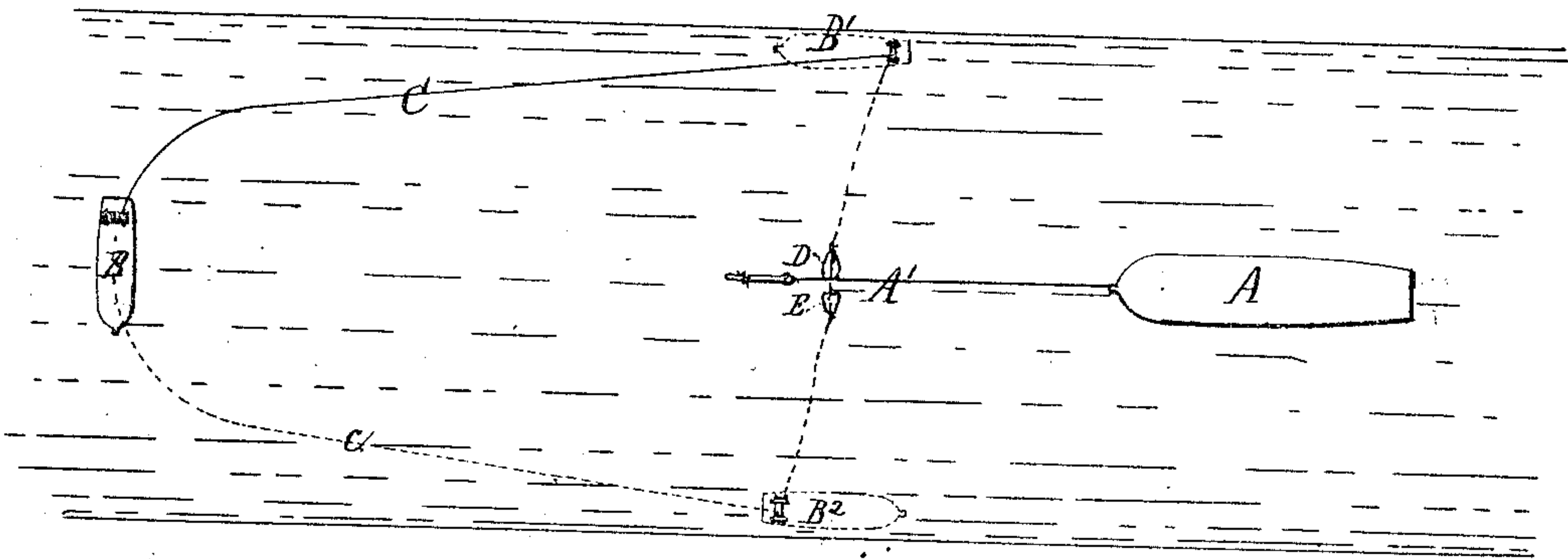


Fig 2.

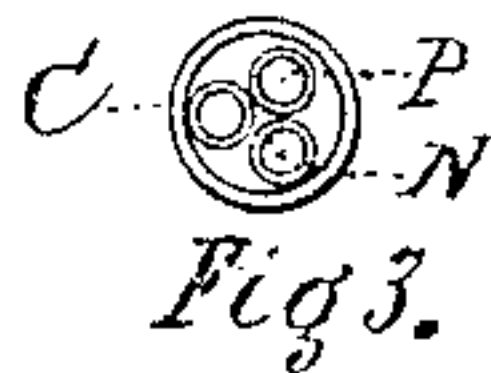


Fig 3.

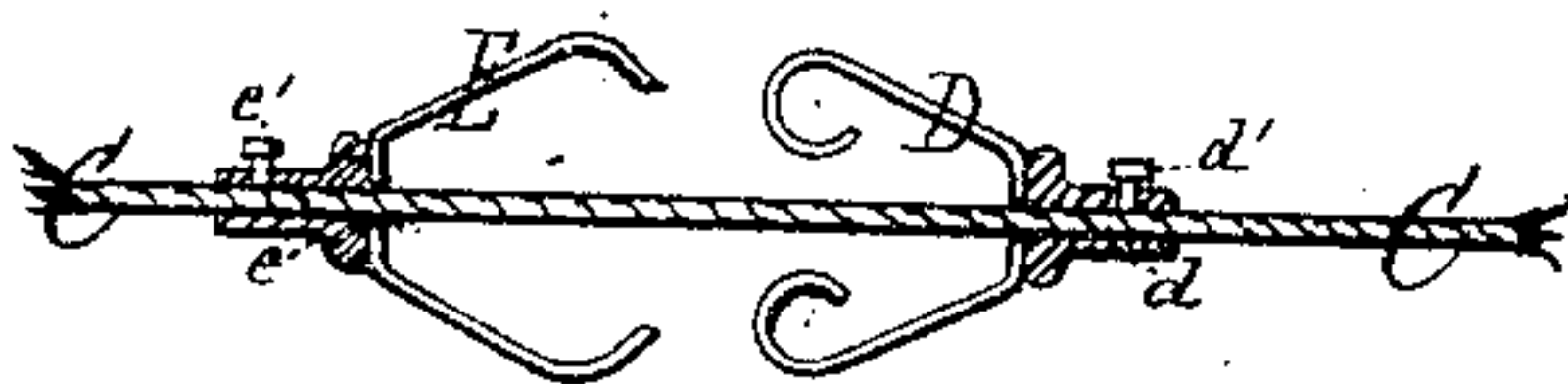


Fig 4.

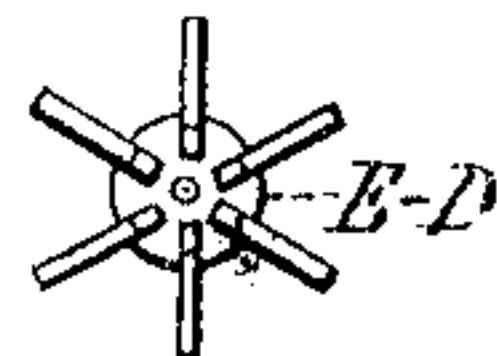


Fig 5.

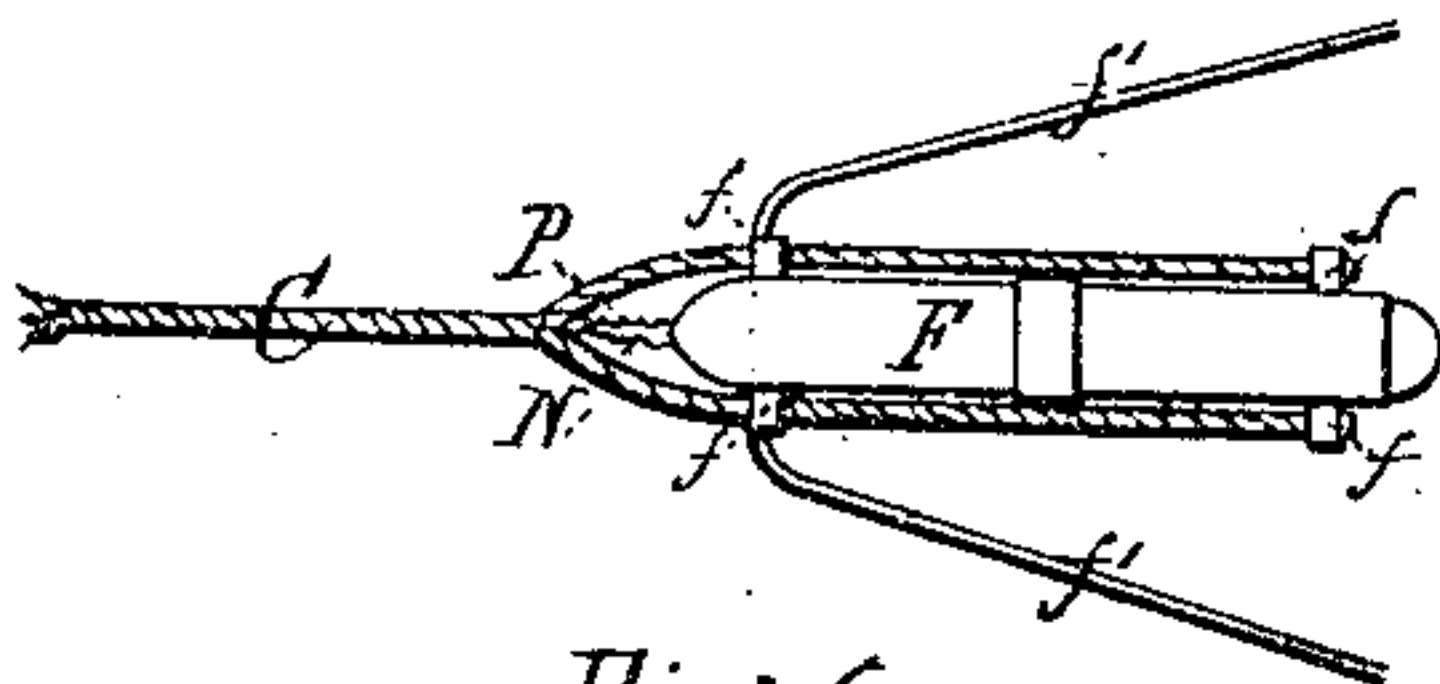


Fig 6.

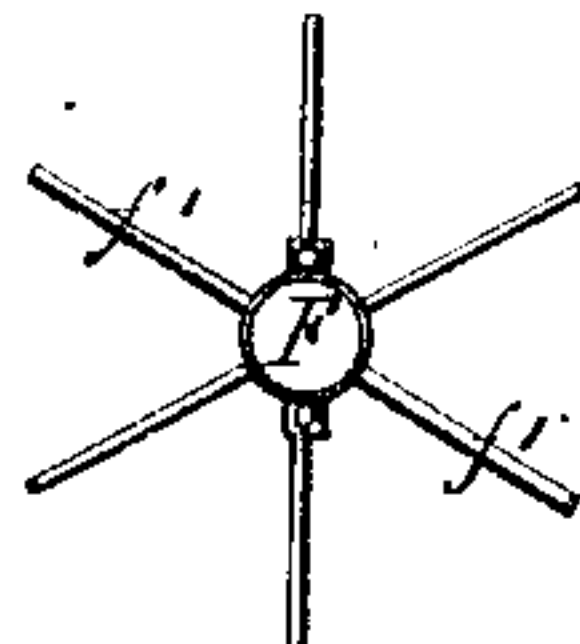


Fig 7.

Witnesses.

Alexander Lowry
A. M. Nibbeling

Inventor.
Thomas M. Brasher
By his attorney
M. Randolph

UNITED STATES PATENT OFFICE.

THOMAS M. BRASHER, OF BROOKLYN, NEW YORK.

MANIPULATING AND FIRING MARINE TORPEDOES.

SPECIFICATION forming part of Letters Patent No. 287,221, dated October 23, 1883.

Application filed May 2, 1883. (No model.)

To all whom it may concern:

Be it known that I, THOMAS M. BRASHER, of the city of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Submarine Torpedoes and Devices for Manipulating and Firing them; and I hereby declare the following to be a full and clear description of the same.

This invention has for its object the construction and manipulation of a torpedo which can be attached to a ship's cable, while the ship is riding at anchor in a stream or current, in such a manner as to allow the torpedo to float under the ship by the action of the tide or current, and then the torpedo exploded by electricity. The torpedo is towed out into the stream or other water by a suitable tug or boat, the tow-line to be attached to a grapple or clutch of peculiar construction, as hereinafter fully explained, which said clutch, by a little manipulation of the operators, is made to catch onto the cable of the ship to be operated on. The tow-line is made in two sections spliced together, one section or end of the line being simply a light "whale-line," while the other section or end is made up of a compound of insulated copper wires and an exterior wrapping of wire or other material, to give the proper strength, which must be equal to that of the whale-line. The cored or wired section of the tow-line is to extend from the firing-station to the clutch above mentioned, and thence on to the torpedo, which is to be swung under the ship, as hereinafter described. The whale-line end of the tow-line is of course to be used simply for towing.

The details of the invention will be readily understood from the subjoined description and from the accompanying drawings, of which—

Figure 1 is a longitudinal sectional elevation of a stream or water in which the torpedo is being applied to the destruction of a large ship. Fig. 2 is a general plan of the same. Fig. 3 is a detailed section of the wired or cored end of the tow-line. Fig. 4 is a longitudinal sectional elevation of the clutch. For the sake of perspicuity, in this view there are only two of the clutch-hooks shown, but in reality there should be six of them, as shown in Fig. 5, so as to make certain of one of them being in position to

catch on the cable when drawn across it. Fig. 5 is an end elevation of the clutch. Fig. 6 is a plan of the torpedo, showing the method of attaching the tow-line and the firing-wires to it. Fig. 7 is an end elevation of the torpedo, showing the radiating spring-guards attached to it.

The figure A in the general drawings represents a ship which is to be operated upon by this torpedo. This ship is moored in a stream or in any navigable water where a current or tidal flow will swing the ship around, so that its keel will be in a line with the anchoring cable A'. The torpedo is to be placed by means of a tug or small boat, B, which on commencing this duty will start from a station, B', and cross the ship's bow, at some distance therefrom, to the station B". The stations B' and B" are to be assumed to be at a sufficient distance from the ship to mask the operations of the attack, and in moving from the station B' to the station B" the boat B can make a detour sufficiently up the stream or current, as shown in Fig. 2, to prevent a disclosure of the movement to those on board the ship. When the boat B starts from the station B', she will commence paying out from a suitable drum or reel on board a tow-line, C, and she will continue paying out this tow-line until she arrives at the station B".

In Fig. 2 the path of the tug or torpedo-boat is indicated by the curved line C c, the line C representing the tow-line already paid out from the boat B at its position shown in Fig. 2, and the line c representing the path of the line yet to be laid before reaching the station B". When the boat B arrives at the station B", she will commence to wind up the drum from which the tow-line was unwound, and in doing so will draw the tow-line taut across the bows of the ship A and overlying the anchor end of the cable A'. The operatives will continue winding up the tow-line until the clutch D E, attached to the said tow-line, shall have caught on and attached itself to the cable A'.

The construction of the clutch D E is clearly shown in Figs. 4 and 5. The clutch is formed of two parts, as is clearly shown in Fig. 4, consisting of the clutch proper, D, and the guard E. Each of these parts is formed of curved

metallic arms fixed radially, respectively, to the sliding heads *d e*, which are placed adjustably on the tow-line C, and secured thereto in any desired positions by means of the respective set-screws *d' e'*. When the boat B leaves the station B', she will leave this clutch at the said station and attached to the tow-line end left at that station, so that when, from station B², the said tow line is drawn up taut, the said clutch may be drawn along with it across the cable A' as desired. In drawing this clutch forward from station B' to the cable the guard E will be in front, and by means of its radial projecting arms or guard-bars will easily slide over any impediment on the bottom over which it is drawn, and also over the cable A' when it is reached.

The clutch D has the open end of its radial arms forward or next to the guard-piece E, and sufficiently removed therefrom to allow the cable A' to slip in between them, and be engaged by the projecting arms of the clutch, as shown clearly in Fig. 4. The arms of the guard E have their projecting ends rounded off, so as to allow them to glide smoothly over the bottom, and the projecting ends of the clutch-bars are also rounded off, so as to prevent their catching on anything over which they are drawn until they reach the cable, and then the cable will easily slip in between the guard and the clutch, and, passing in between the bars of the clutch, be retained by them as the free ends of the clutch-bars turn inward, as is clearly shown in Fig. 4, thereby locking or holding the clutch onto the cable as desired.

The bars forming the projecting radial arms of the clutch and its guard are preferably made of spring-steel; but this is not important.

The torpedo F is made of two metallic cylinders screwed together in a central band, and attached to the end of the tow-line, which is bifurcated, so as to allow one section of the line to pass down on one side of the torpedo, and the other section of the line down on the other side of the torpedo, as shown in Fig. 6, thereby causing the torpedo to tow fairly in a right line. The tow-line is attached to the torpedo by means of lugs or loops *f*, projecting from the sides of the torpedo for that purpose. The wires P N, that are to fire the torpedo, leave the cable at the point of its bifurcation, as shown in Fig. 6, and between the point of leaving the cable and the point of entering the torpedo the said wires are curved or bent into sinuosities, so as to prevent any towage-strain on them, and to allow for a considerable movement of the tow-line in either direction without injuring the torpedo or causing a leakage at the point of passing the electrical wires into it. The front end of the torpedo is made conical, so as to facilitate its towage, and attached to its forward end, or to the sides of it near the forward end, and radiating obliquely and outwardly from the

point of attachment is a series of spring-guards, *f'*, as shown in Figs 6 and 7. These spring-guards are made of small steel rods, and serve to keep the torpedo off of the bottom, and help it to rise over any obstacle while it is being towed into position.

The tow-line C, for the first half of it nearest the station B², (when first laid,) is simply an ordinary whale-line; but the other end of it, which is attached to the torpedo, is a cored or compound line having two or more wires, P N; but for facility of constructing the line I prefer three of the core-wires, as shown in Fig. 3, as the three wires can be more readily insulated and wound than could two wires. The two sections of the line thus formed—viz., the whale-line and the cored line—should be of about equal strength, and the wires P N must be thoroughly insulated and protected.

After the boat B shall have reached the station B² in the process of placing this torpedo, the first operation is to draw in the tow-line, thus bringing on board the small boat all of the whale-line and the first or attached end of the cored line. This will draw the clutch D E from the station B' to the vicinity of the cable A', and as the clutch is drawn over the said cable at a short distance from the anchor the clutch will drop onto the cable and be retained there by means of its locking and clutching arms, and from the firmness with which it will then hold the tow-line from further movement toward the boat B the operatives will judge that the cable has been clutched and held, and the attempt to draw the tow-line on board the boat B will then cease. As soon as the strain on the tow-line ceases, the action of the current or tide may cause the clutch to slide up somewhat on the cable some distance toward the ship, and the torpedo attached to the end of the tow-line will also swing around directly in a line with the cable, and under the ship, if the calculations previously made as to the depth of water, position of anchor, slope of cable, &c., have been correct, or nearly so. Of course much of this information can readily be obtained from known and reliable data, as published charts will in most instances give the depth of water, character of bottom, and direction and strength of currents, while careful observations previously made will supply all other needed information. Much valuable data can also be obtained by a series of careful experiments, such as are usually made on undertakings of this character, and on the information thus readily accessible ordinarily skillful men can reasonably expect to clutch a ship's cable and send a torpedo under her bottom in proper position to blow up and destroy the ship, with very little chance of miscarriage of the attempt. It is evident, of course, that this operation is to be conducted in the night, and masked, as far as possible, from disclosure by electric lighting. A foggy night would be admirably adapted to the purpose. As soon as the cable is clutched and the torpedo placed

under the ship, the torpedo can be fired by electricity, in the usual manner, through the cored cable from the station B².

Having described my invention, I claim—

- 5 1. A wire cored tow-line and an attached submarine torpedo, in combination with an automatic clutch attached to the tow-line for grappling with the anchoring-cable of a ship or vessel riding at anchor, the said clutch being formed of radiating arms, and attached to
10 the said tow-line in such a manner as to be readily drawn across and grappled onto the anchoring-cable of a ship riding at anchor in a stream or current.
- 15 2. A clutch formed of a series of short metallic rods or arms fixed to and radiating from a central hub-piece which is arranged to concentrically surround a towing-line, and adjustably attached thereto by means of a set-screw,
20 the said radiating arms made to slope outwardly from the central line at angles of about thirty degrees therewith, and the disengaged ends of the said radiating arms curved inwardly toward the towing-line which carries
25 them; also, in combination with said clutch, a guard formed of a similar adjustably-attached hub-piece and radiating metallic arms, except the distended ends of the guard-rods constructed without re-entering curves toward the
30 tow-line, as in the case of the clutch proper.

3. A cylindrical torpedo having a wire cored tow-line attached thereto by means of peripheral loops or attachments placed in pairs on diametrically-opposite sides of the torpedo—one pair near either end of the torpedo—
35 and the towing-line bifurcated near the front end of the torpedo, so as to allow one part of the line to be attached to the attaching-loops on one side of the torpedo, and the other part to the attaching-loops on the other side of the
40 torpedo, thereby causing the line of traction to coincide with the longitudinal axis of the torpedo.

4. A cylindrical submarine torpedo provided with an attached wire cored tow-line for
45 towing and exploding it, and a guard at its front end composed of metallic rods rigidly fixed to the center of its forward end, and radiating rearwardly therefrom in lateral, downward, and upward directions, so as to allow
50 the said torpedo, in being towed to its position, to rise over or pass around obstructions that may be encountered.

THOMAS M. BRASHER.

Witnesses:

ALEXANDER LOWRY,
A. W. NIBOEUS.