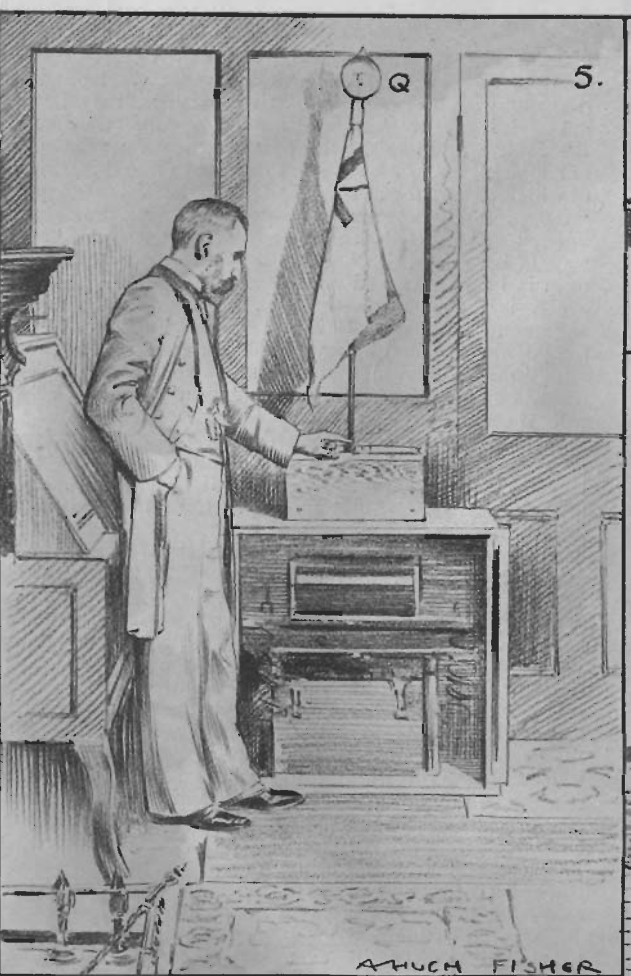
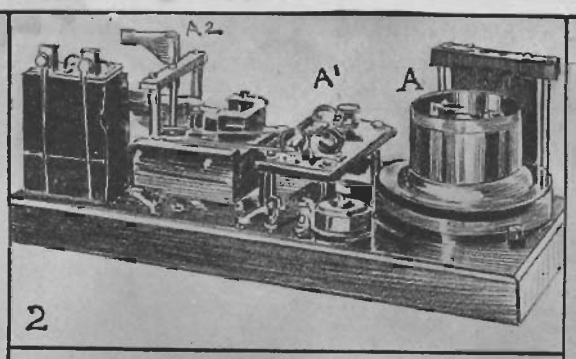
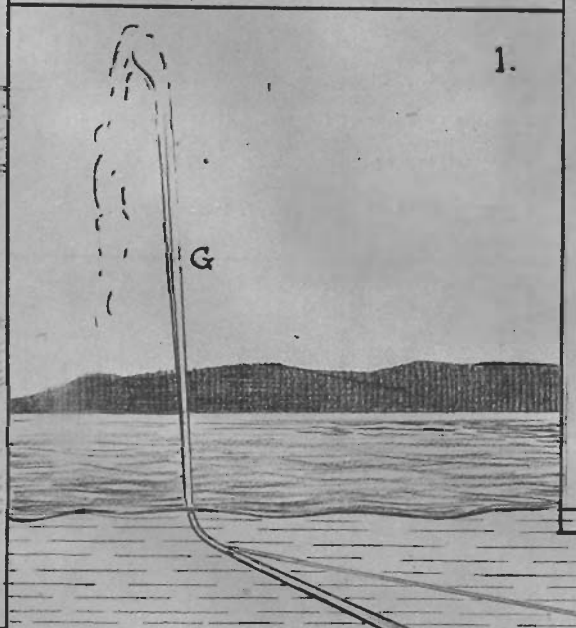
THE WIRELESS GUIDANCE OF TORPEDOES BY ELECTRIC WAVES.

DRAWN BY A. HUGH FISHER.



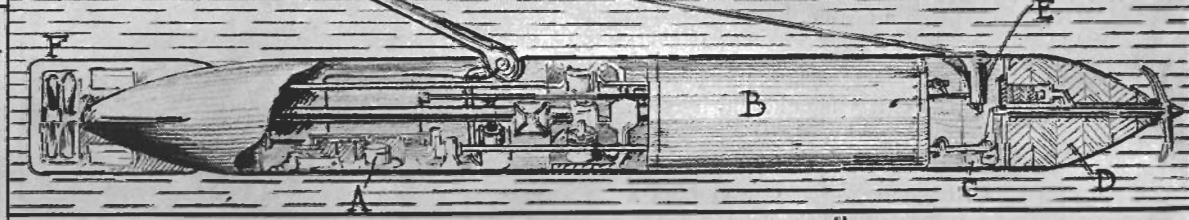


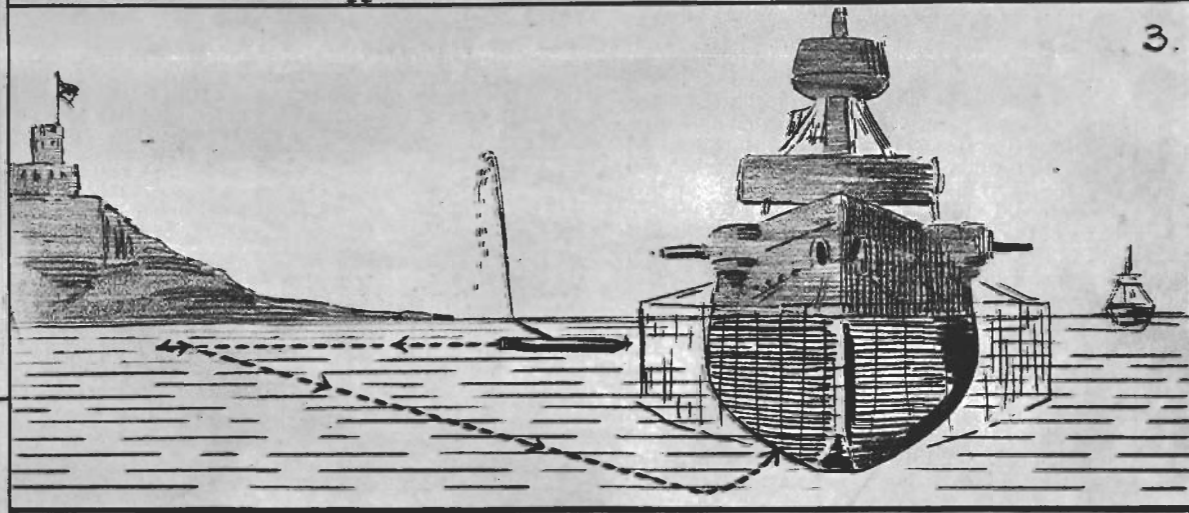


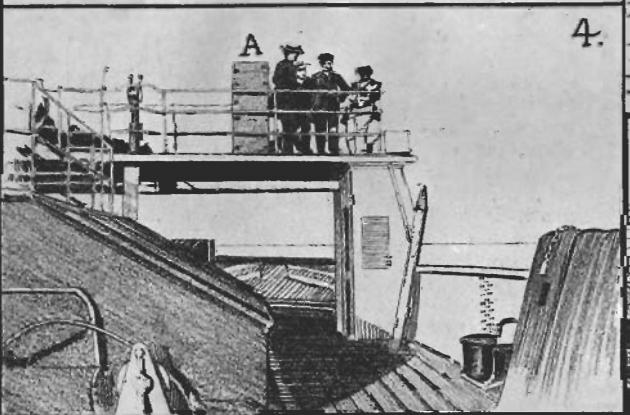
turn. Every quarter-turn of this arm causes the screws to revolve differently, and consequently makes the torpedo take up a new position. Of course, it was necessary to have some mark to show the position of the torpedo in the water. I used a flag at first, but the Admiralty asked me if I could not devise something which could not possibly be shot down by an enemy. One night I dreamed the way to get over the difficulty, and now we have an air-pressure tank in the torpedo which sucks in salt water and sends it out again like the blow of a whale. They may fire at that for ever without doing any harm. The spray of water at the same time serves as an indestructible receiver for the electric waves. On encountering a war-ship the torpedo first travels towards the netting which surrounds it as a protection against torpedoes of all kinds. After it has struck the net it goes back, as shown by dotted lines in Fig. 3, sinks, as indicated by the said line, and then blows up the vessel."

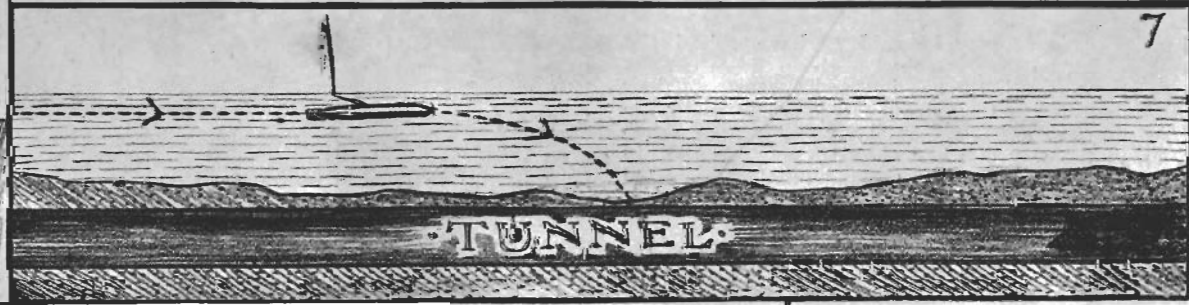
THE ORLING-ARMSTRONG TORPEDO.

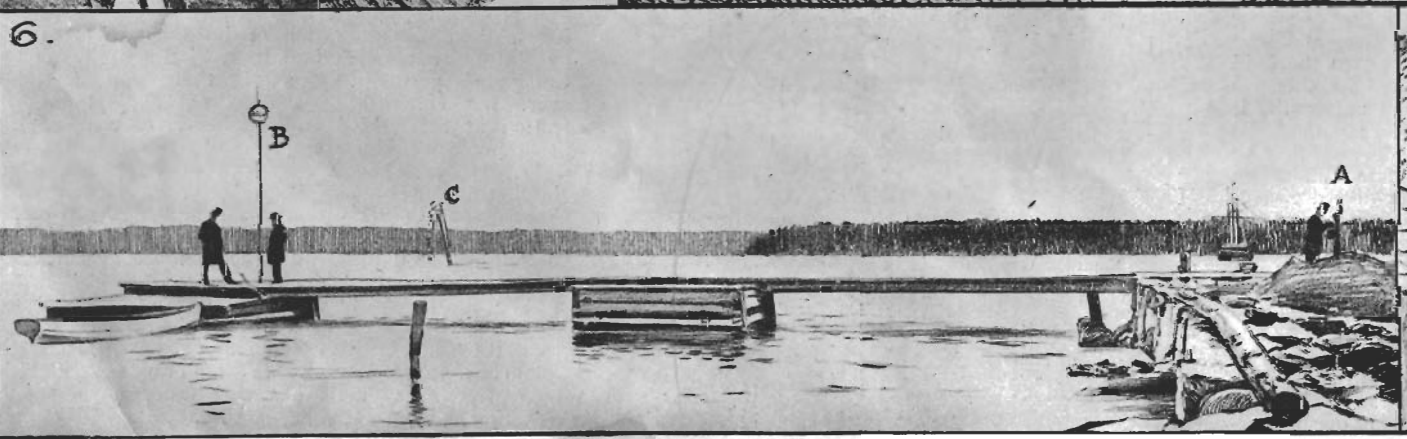
"OUR torpedo is not a projectile," said Mr. Armstrong. "It is just dropped or slipped into the water, and is then, without any connecting-wires, entirely subject to my control, either from the bridge of a ship or a room on shore. Within the torpedo itself is the apparatus shown in Fig. 2. 'A' is the receiver, 'A 1' is an arrangement called a transformer, which makes the fine impulses received from 'A' act upon 'A 2,' an arm, the movement of which causes the screws to











1. Section of Torpedo showing Receiving Apparatus (*A*), Air-chamber (*B*), Dipping Chambers (*C*), Explosive Head Charged with Guncotton (*D*), Double Escapement—First Dipping, Second to Ignite the Charge (*E*), Screws (*F*), Blow of Water showing Whereabouts of the Torpedo and Receiving the Electric Rays (*G*).

2. Receiving Apparatus which Works the Arm that Turns the Screws.

3. Diagram showing Path of the Torpedo after Striking the Net Outside a War-Ship.

4. The Bridge of a Steamer with Transmitting Apparatus (*A*).

5. Mr J. Tarbotton Armstrong Sending out Electric Rays from *Q*, from a Room on Shore, to Control a Torpedo out at Sea.

6. Man at *A* Working Transmitter Wires Passing along under the Wooden Planks to *B*, whence the Electric Rays are Sent out through the Air, Controlling the Movements of Torpedo at *C*.

7. Shows Path of an Orling-Armstrong Torpedo which is being Guided to Destroy a Supposed Channel Tunnel.

8. Transmitting Station, out of View of the Enemy, Hidden in the Face of a Cliff. The Operator, Watching a Torpedo at Sea with the Telescope, Controls its Movements with his Left Hand on the Button of the Transmitter, which Sends out Electric Waves Caught by the Torpedo.