

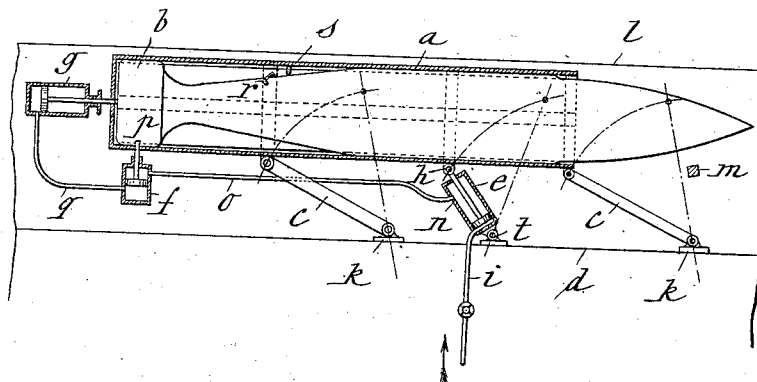
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PATENTED OCT. 22, 1907.

H. SMULDERS.

TORPEDO PROJECTING APPARATUS FOR SUBMARINE AND SUBMERSIBLE
VESSELS.

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WITNESSES:

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UNITED STATES PATENT OFFICE.

HENRI SMULDERS, OF SCHIEDAM, NEAR ROTTERDAM, NETHERLANDS.

TORPEDO-PROJECTING APPARATUS FOR SUBMARINE AND SUBMERSIBLE VESSELS.

No. 868,946.

Specification of Letters Patent.

Patented Oct. 22, 1907.

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To all whom it may concern:

Be it known that I, HENRI SMULDERS, engineer, a subject of the Queen of Netherlands, residing at Schiedam, near Rotterdam, Netherlands, have invented a new and useful Torpedo-Projecting Apparatus for Submarine and Submersible Vessels; and I do hereby declare the following to be a full, clear, and exact description of the same.

This invention relates to an apparatus for projecting torpedoes from submarine and submersible vessels, which is operated by means of compressed air or any other fluid under pressure.

The arrangement is illustrated diagrammatically in the accompanying drawing.

It consists of a tube *a* of suitable shape and dimensions in the interior of which there is formed a groove designed to guide the tail *b* of the torpedo when the latter is in motion. The tube *a* is carried by two or more arms *c* movably jointed at one end to the hull or shell *d* and at the other end to the tube itself. *e*, *f*, *g* are cylinders for compressed air (or other suitable fluid) the function of which is hereinafter described. The first cylinder *e* is movably jointed at *t* to the hull, while the end *h* of its piston rod is movably jointed to the tube *a*. This cylinder *e* may be arranged below the tubular casing *a* as shown in the drawing, or it may be placed in any other suitable position relatively to the said casing. The compressed air supplied from the interior of the submarine through a duct *i*, acts first on the piston of the cylinder *e*. The apparatus turns on the points *k k*, and in this movement comes above the wave-guard *l*. A fixed buffer or stop *m* arrests one of the two arms *c* in its movement before it has reached the vertical position, thereby limiting the rise of the apparatus *a*. At this moment the piston of the cylinder *e* has moved beyond the orifice *n* of the duct *o* which establishes communication between the cylinders *e* and *f*. The compressed air passes through the pipe *o* and acts upon the piston of the cylinder *f*. The piston moves down and thereby retracts the bolt *p* which is fixed to the piston, and which has up till now held the tail of the torpedo stationary in the apparatus, and at the same time releases the safety brake. As soon as the piston has reached the end of its stroke the orifice of the pipe *q* is uncovered in its turn. The compressed air passing through *q*, forces the piston of the cylinder *g* forwards and thereby causes the torpedo to move forward a corresponding distance, say about 200 millimeters. In this movement the air inlet lever *r* which exists in all torpedoes,

strikes a finger *s* fixed to the apparatus and is moved back so as to open the air inlet valve, in the manner usual in most torpedo projecting apparatus. The torpedo then starts and moves out of the tube. When the torpedo has passed out, the compressed air piping is connected to exhaust and the apparatus by its own weight moves back into its position of rest on its supports.

The arrangement that has just been described is not essential to the invention and may be varied in many ways. For instance, to cite only one example, the same result may be achieved without raising the tube *a* to the height of the wave-guard, by arranging in the front of the wave guard a simple or double door which can be opened at the desired moment to give passage to the torpedo. The movement of this door may be automatic, controlled by a combination of levers actuated by a pneumatic or hydraulic cylinder of the same kind as those described above; the cylinder *e*, for example, may have the function of opening the door instead of that of raising the tube *a*, this function being really the same, namely the opening of a passage for the torpedo.

Having thus described the nature of my said invention and the best means I know of carrying the same into practical effect, I claim:—

1. A torpedo projecting apparatus for submarine and submersible vessels, operated by means of compressed air or other fluid under pressure, said apparatus comprising a metal tube adapted to receive the torpedo, arms movably jointed in a suitable manner to the hull of the boat and carrying the said tube, three cylinders whose pistons are adapted respectively to raise the tube above the wave-guards, to release the device holding the torpedo, and to produce forward movement of the latter.

2. A torpedo projecting apparatus for submarine and submersible vessels, comprising a tube, three cylinders, piping adapted to form communication between the said cylinders, a supply of fluid under pressure adapted to communicate with the first cylinder, and an arresting device such that the piston of one cylinder releases the said arresting device as soon as the apparatus has been raised to the desired height by the piston of another cylinder, the piston of the third cylinder then producing the forward movement of the torpedo in the said tube, this forward movement having the result of opening the air supply valve and starting the movement of the torpedo.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

HENRI SMULDERS.

Witnesses:

JACQUES NOOLEBOOM,
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