(No Model.)

H. F. HICKS.

SUBMARINE TORPEDO.

No. 263,407. Patented Aug. 29, 1882.

Fig. 1.

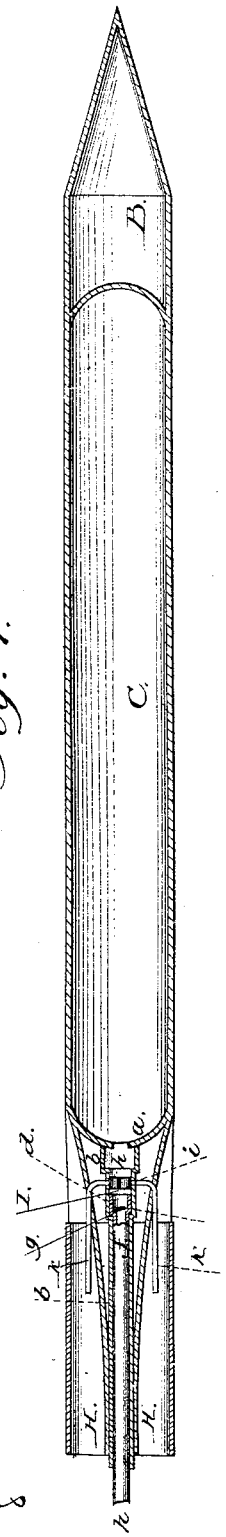
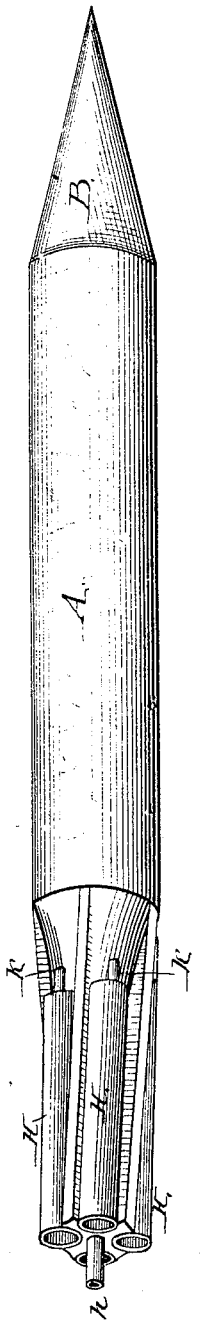


Fig. 2.



WITNESSES

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SUBMARINE TORPEDO.

SPECIFICATION forming part of Letters Patent No. 263,407, dated August 29, 1882.

Application filed March 9, 1882. (No model.)

To all whom it may concern:

Be it known that I, HORATIO F. HICKS, of Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain Improvements in Submarine Torpedoes; and I hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a longitudinal sectional view of my improved torpedo. Fig. 2 is a perspective view of the same.

My invention relates to that class of torpedoes designed to be fired from a gun or hurl-barrel fixed below the water-line in a torpedo-boat; and my invention has for its object to maintain as far as possible a high velocity in the torpedo after it is fired from the hurl-barrel.

My invention consists in a torpedo provided with a chamber heavily charged with compressed air, and provided with means for opening a valve at the moment of the discharge of the torpedo to allow the escape rearwardly of the compressed air through small jet-tubes opening into a series of cylindrical diagonally-arranged cells or tubes at the rear end of the torpedo, whereby the force of the escaping compressed air, acting on the water, assists in the propulsion of the torpedo.

In order that those skilled in the art may make and use my invention, I will proceed to describe the manner in which I have carried it out.

In the said drawings, A is the torpedo, provided at its forward end with a chamber, B, for the exploding charge, and a long chamber, C, for containing compressed air. Projecting from the rear plate or heading, *a*, is a tube, *b*, intended to serve as a conduit for charging the compressed-air chamber, and provided with a check-valve, *d*, located in a seat, *e*, at or near the end of an interior sliding tube, *f*, having an enlarged end, which catches against offset *g* in tube *b* and prevents said tube *f* from being blown out. At the point or for a short distance from where pipe or tube *b* is attached to the heading or plate *a* said tube is enlarged, as shown at *h*, for a purpose hereinafter described. At *i i* tube *b* is tapped and a series of jet-tubes, *k k*, are fastened in said pipe, the open ends of said jet-tubes terminating within a series of tubular open-end housings, H H. Within tube *b*, between the plate *a* and the check-valve *d*, is a split-ring valve, I, made after the fashion of a packing-ring, and by its expansion closing all the taps or holes *i i* so the compressed air cannot escape until said split ring is removed. The inner or telescopic tube, *f*, protrudes from the rear end of the torpedo, and is kept in that position by the interior pressure of the compressed air against the check-valve. The cylindrical housings or tubes H H around the jet-tubes are open at both ends, so that there may be a free flow of water through them, and they have a slight rotary pitch to the axis of the torpedo, so that a rotary motion is imparted to the torpedo by its passage through the water.

The operation is as follows: When the pressure is let into the hurl-barrel the torpedo-piston is driven against end *n* of tube *f*, which is thereby forced through tube *b* until it strikes the split-ring valve I and forces it into the enlargement *h* of tube, where it expands and remains, leaving pipes or tubes *k k* open for the compressed air to escape in jets and force the torpedo forward. As soon as the torpedo leaves the gun the pressure forces rod *f* back to its seat.

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

1. A submarine torpedo adapted to be fired from a hurl-barrel, provided with a compressed-air chamber, in combination with a series of rearwardly-projecting jet-tubes, *k k*, communicating with said chamber and an intervening valve, for the purpose set forth.

2. The torpedo provided with a compressed-air chamber and rearwardly-projecting jet-tubes *k k*, in combination with the cylindrical housings H, covering the ends of said jet-tubes, and having a rotary pitch to the axis of the torpedo, substantially as described.

3. The combination of tube *b*, having enlargement *h*, and tubes *k k*, with the split-ring valve I and telescoping tube *f*, provided with a check-valve, all constructed as described, for the purpose set forth.

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Witnesses:

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