H. L PORTER.
Torpedo for Oil-Wells.

No. 207,678. Patented Sept. 3, 1878.

Fig 1.

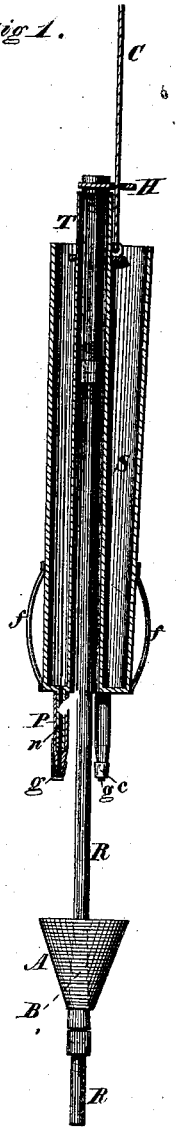
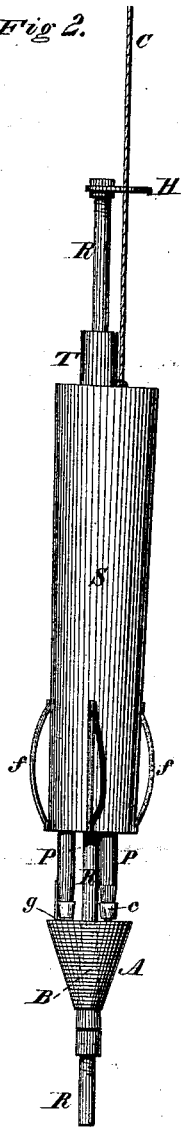


Fig 2.



Witnesses.

Harry King

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Horatio L. Porter,

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UNITED STATES PATENT OFFICE.

HORATIO L. PORTER, OF ELK CITY, PENNSYLVANIA.

IMPROVEMENT IN TORPEDOES FOR OIL-WELLS.

Specification forming part of Letters Patent No. **207,678**, dated September 3, 1878; application filed January 31, 1878.

To all whom it may concern:

Be it known that I, H. L. PORTER, of Elk City, in the county of Clarion and State of Pennsylvania, have invented certain new and useful Improvements in Torpedoes for Use in Oil-Wells; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 is a vertical section of my improved torpedo suspended by its cord in position to be let down into an oil-well. Fig. 2 is a side elevation of the same, showing the primers and anvil in contact as at the instant of explosion.

The same letter marks the same part in both the figures.

The nature of my invention consists in the peculiar construction of the shell, primers, and anvil, and in the mode of hanging and firing the torpedo, all as hereinafter more particularly set forth.

In the drawings, S marks the shell, which is slightly conoidal in form, and is provided with a flat bottom and a central tube, T, open at both ends, projecting up from the bottom and out at top of the shell. On the outside of the lower end of the shell are the fenders *f*, which bear it off from the sides of the well. From the bottom of the shell project downward nipple-tubes *n*, which receive the primers P, provided with percussion-caps *c* on their lower ends. The caps are held in place by the guards *g*.

Through the tube T passes the rod R, on which the shell slides. The shell has attached to its upper end a cord, C, by which the torpedo is lowered into the well. The cord passes through a looped head, H, attached to the upper end of rod R, and serves as a guide to steady and keep the torpedo in upright position while the shell is descending. Near its lower end the rod R receives a short conoidal tube, B, on which the anvil A is seated. The anvil has a central tube corresponding in form to the tube B, so that it may be driven and seated firmly upon the latter. The anvil is conical, with its base upward in position to receive the impact of the primers when they are allowed to fall upon it to produce the explosion.

The operation is as follows: The torpedo, constructed as described, and properly loaded and primed, is lowered into the well. While descending the anvil hangs at some distance below the primers, as shown in Fig. 1. When the lower end of rod R reaches the bottom of the well the anvil, by its momentum, is driven firmly upon the conoidal tube B. The cord C is still paid out, and the shell S descends upon the rod R until the caps *c* on primers P strike upon the face of the anvil and are exploded.

I claim—

1. The shell S, provided with central tube, T, primers P, and suspending-cord C, in combination with rod R, carrying the anvil A, and provided with the looped head H, all constructed and arranged to operate as and for the purpose set forth.

2. In combination with the nipple-tubes *n*, the primer-tubes P and guards *g*, arranged and operating as specified.

In testimony that I claim the foregoing as my own invention I affix hereto my signature in presence of two witnesses.

HORATIO L. PORTER.

Witnesses:

BENJAMIN F. PECK,

W. A. HUFF.