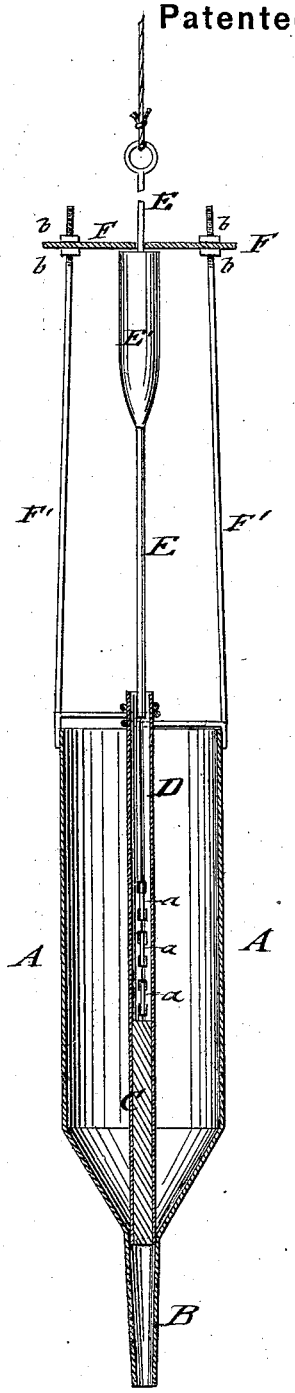
J. J. BOYER.

Torpedo for Oil-Wells.

No. 200,164. Patented Feb. 12, 1878.



WITNESSES:

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JOEL J. BOYER, OF LAMARTINE, PENNSYLVANIA.

IMPROVEMENT IN TORPEDOES FOR OIL-WELLS.

Specification forming part of Letters Patent No. **200,164**, dated February 12, 1878; application filed December 13, 1877.

To all whom it may concern:

Be it known that I, JOEL J. BOYER, of Lamartine, in the county of Clarion and State of Pennsylvania, have invented a new and Improved Oil-Well Torpedo, of which the following is a specification:

The accompanying drawing represents a vertical central section of my improved oil-well torpedo.

The object of this invention is to furnish an improved torpedo for oil-wells that may be exploded at any desired depth, but not under fluid, and that is so constructed as to secure the explosion in reliable manner whenever the torpedo is in position.

The invention consists of a torpedo made of a shell or case, with bottom socket for inserting the anchor, solid anvil, and interior guide-tube for the weighted drop-wire, that is guided in a top guard of supporting-bails.

Referring to the drawing, A represents the shell or casing of my improved oil-well torpedo, which is made of tin or other material, and charged with nitro-glycerine or other explosive matter.

The bottom part of the shell A is provided with a socket, B, for the anchor, that is intended to be of such length as to reach from the point where the torpedo is to be exploded down to solid ground.

By using a longer or shorter anchor the torpedo can be brought into position at any desired point in the oil-well.

Above the anchor-socket is arranged in the shell a solid anvil, C, that forms the support for the percussion-caps. A split center tube, D, extends vertically from the anvil C upward through the shell to a short distance above the level of the upper edge of the same. The tube D serves as a guide for the drop-wire E that explodes the caps, and thereby the torpedo.

The caps are placed on short wire links *a*, of which preferably three are used, each having two caps, so that there is scarcely any chance of failure to explode when the wire is dropped.

To the drop-wire E is attached a weight, E′, of about seven or eight pounds, and the wire E extended above the weight and provided with a loop, to which the line by which the torpedo is attached is lowered.

The upper part of the drop-wire E is guided in a detachable guard or guide piece, F, that is secured by upper and lower nuts *b* to the threaded ends of fixed stays or bails F′ of the shell.

The central guide-tube C is also connected at the upper end by wire or other stays to the shell, so as to retain its exact position vertically below the drop-wire, and guide the latter when dropped onto the caps, so as to explode the charge.

When the anchor reaches bottom in lowering the torpedo into the well, the same may be instantly and reliably exploded by the lowering of the supporting-line and the consequent dropping of the weighted wire.

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

In a torpedo, the combination, with shell having anchor-socket, of the solid anvil C, guide-tube D, weighted drop-wire E, and guard of supporting-bails, as shown and described.

JOEL JEROME BOYER.

Witnesses:
JAMES BICKERSTAFF,
CHARLES SHOEMAKER.