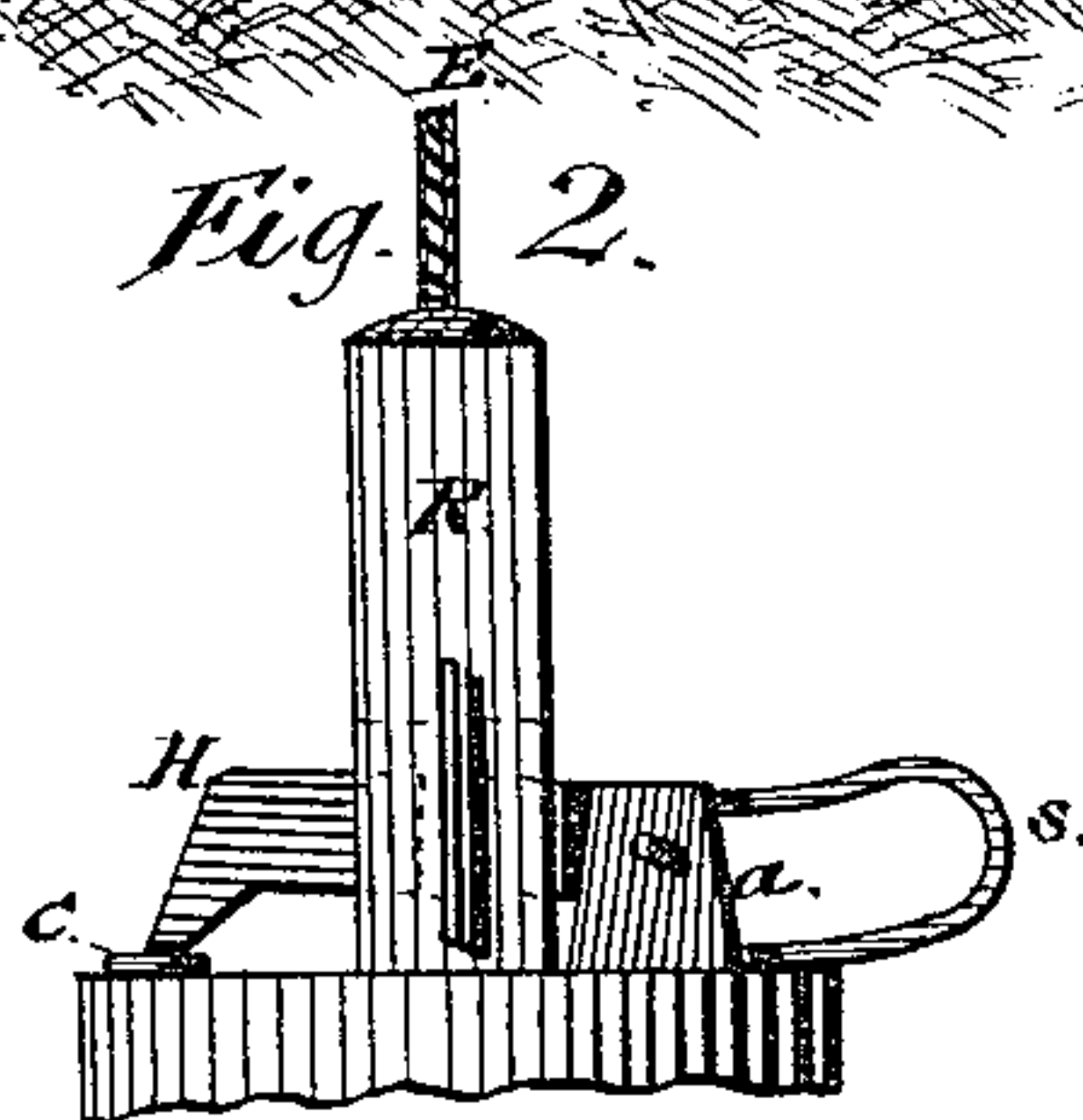
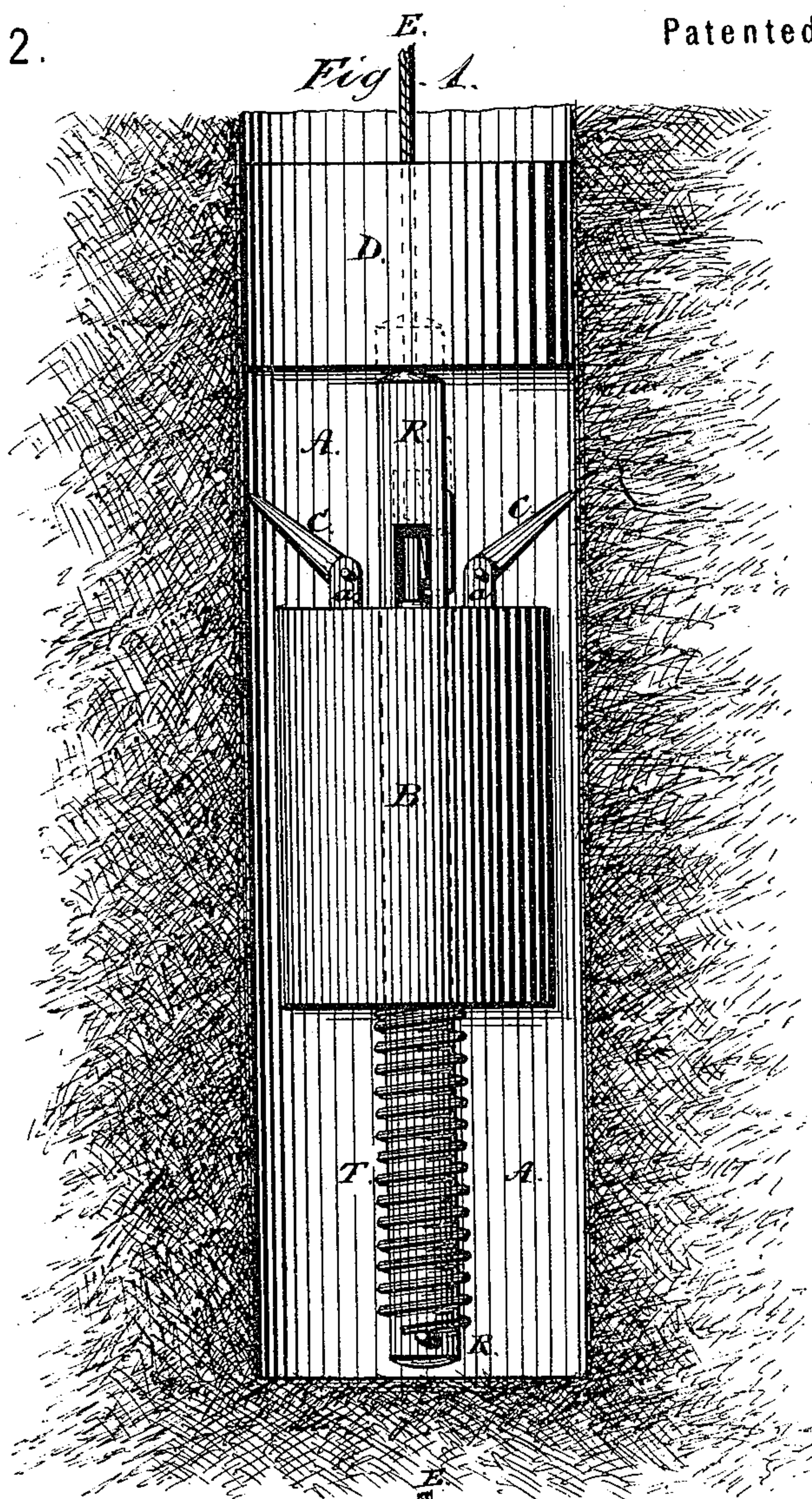


J. TAYLOR.
Torpedo for Oil- Wells.

No. 163,952.

Patented June 1, 1875.



Witnesses:
A. W. Wilson
W. P. Bell

Inventor:
Jacob Taylor
By his Attorneys
Stansbury & Munn.

UNITED STATES PATENT OFFICE.

JACOB TAYLOR, OF MILLERSTOWN, PENNSYLVANIA, ASSIGNOR OF ONE-HALF HIS RIGHT TO EDWARD F. RANDOLPH, OF RIDGEWAY, NEW YORK.

IMPROVEMENT IN TORPEDOES FOR OIL-WELLS.

Specification forming part of Letters Patent No. **163,952**, dated June 1, 1875; application filed November 21, 1874.

To all whom it may concern:

Be it known that I, JACOB TAYLOR, of Millerstown, Butler county, Pennsylvania, have invented an Improved Torpedo; and I do hereby declare the following to be a full and correct description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical section of a part of an oil-well with my torpedo introduced. Fig. 2 is a side elevation of the upper part of the magazine, taken at right angles to the view in Fig. 1, and showing the device for firing the charge.

The same part is marked by the same letter of reference in both figures.

My invention consists in the devices, hereinafter described, for fixing, tamping, and firing the torpedo in an oil-well.

In the drawing, A marks the bore of the well; B, the magazine of the torpedo, which is to contain the explosive material. The magazine is cylindrical in shape, and is provided at top with a nipple covered by a percussion-cap, *c*, by the explosion of which the charge is ignited. To lugs *a* on top of the magazine are pivoted two pawls or anchors, C, which allow of the ready descent of the magazine into the well, but resist its withdrawal by becoming engaged with the sides of the well. A hammer, H, is pivoted to lugs *d* on top of the magazine, and is held down in contact with the percussion-cap *c* by the reaction of spring S. Through the middle of the magazine passes vertically the rod R, around the lower part of which is wound the spiral spring T, on the upper end of which the bottom of the magazine rests. This spring supports the magazine, and prevents it from raising the hammer prematurely. The hammer passes through a slot in the upper end of rod R. On the inside of this slot is a pin, which engages the side of the hammer, and holds it till the rod R has been drawn up a

short distance, when it releases the hammer, and permits it to fall upon the cap *c* and explode it. To the top of rod R is attached a cord, E, which passes up through the tamping-box D to the top of the well. The tamping box or bag D is made of proper size and shape to fit snugly the bore of the well. Its office is to confine the explosive force as much as possible to the immediate neighborhood of the spot where it is developed. It is usually filled with sand.

Such being the apparatus, the operation is as follows: The torpedo duly charged, with the tamping-box D above it, is lowered into the well to the point where the explosion is designed to take place. Then, by drawing upon the cord E, the anchors C C become engaged with the sides of the well, and prevent the magazine from rising farther; but the rod R continues to rise until the hammer H is raised and released, when the cap *c* is fired, and the explosion takes place.

Having thus described my invention, what I claim is—

1. In combination with the magazine B, provided with the anchors C C and the discharging devices, the separate tamping-box D, adapted to be connected and suspended, substantially as and for the purpose set forth.

2. The movable rod or shaft R, passing through the magazine and operating the hammer H to fire the charge, in the manner set forth.

3. The combination, with the rod R and magazine B, of the spring T, in the manner and for the purpose stated.

The above specification of my said invention signed and witnessed at Millerstown, Pa., this 6th day of November, A. D. 1874.

JACOB TAYLOR.

Witnesses:

A. KLINE,
I. M. TAYLOR.