A. T. BALLANTINE.

Torpedo.

No. 50,324. Patented Oct. 10, 1865.

Fig. 1.

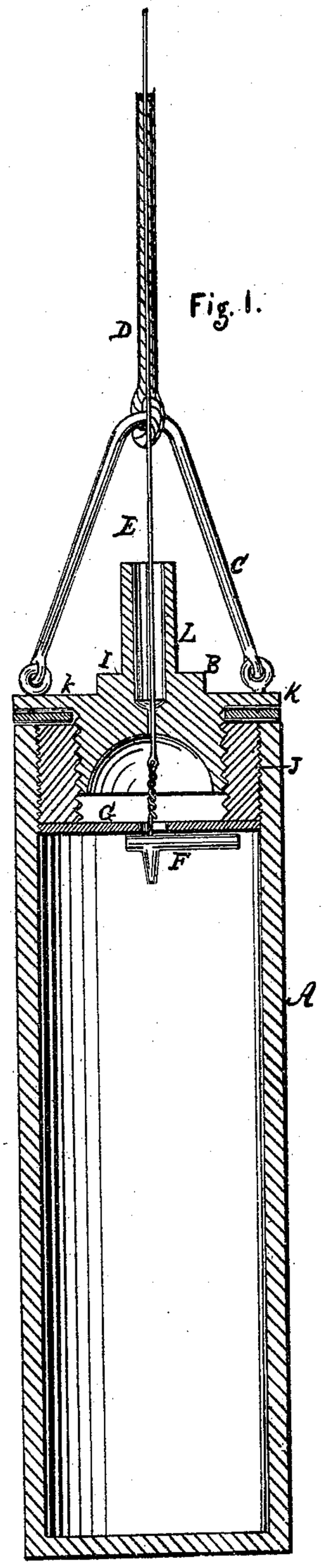
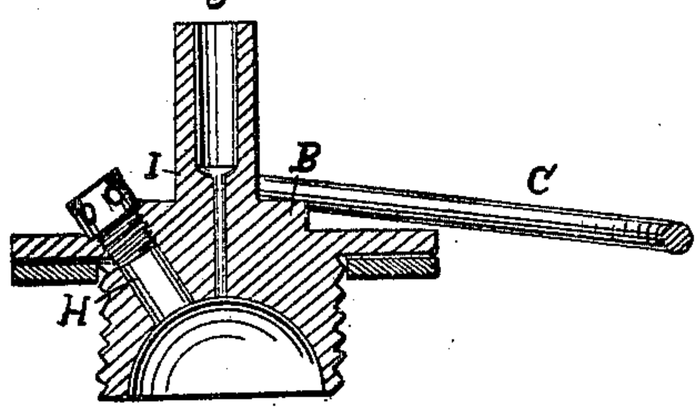


Fig. 2.



Witnesses.

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UNITED STATES PATENT OFFICE.

A. T. BALLANTINE, OF MORRISTOWN, NEW JERSEY.

IMPROVED TORPEDO FOR OIL-WELLS, &c.

Specification forming part of Letters Patent No. **50,324**, dated October 10, 1865.

To all whom it may concern:

Be it known that I, A. T. BALLANTINE, of Morristown, in the county of Morris and State of New Jersey, have invented a new and useful Improvement in Exploding Oil and other 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 make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is an axial section of a torpedo for exploding and opening oil and other wells made according to my invention. Fig. 2 is a detailed sectional view of the cap of the torpedo.

Similar letters of reference indicate like parts.

This invention has for its object to open the veins and seams of oil and other deep wells by exploding powder or other substances therein. It is also applicable to clearing away paraffine and other obstructing matters from the sides of such wells, and from the seams in the rock.

It consists in constructing it of such material as to enable the operator to withdraw it after explosion without difficulty, and also in so constructing it that it shall be exploded by its own weight after it has nearly reached the point to be acted on.

A designates a hollow cylinder, of lead or other soft metal which will not fly into separate pieces when shattered by the explosion of its contents, but will be torn open in such a way as to leave its mass hanging together or else broken into large fragments. Its bottom is left solid, while its top is closed by means of a plug, B, screwed into a ring, J, which is screwed within the mouth of the cylinder. The joints made by the plug and collar are made tight, so as to exclude water and air, by means of a packing-ring placed between the flange K of the plug and the top of the ring and the top of the cylinder. A bail, C, is secured to the upper surface of the plug, and a rope, D, fastened to the bail, enables one to lower the cylinder into a well. The plug is perforated centrally, as at *i*, to allow a small wire, E, to pass into the cylinder, where it is connected to a friction-primer, F. The bottom of the plug is made concave, and its top is surmounted by a hollow cap, L, through which the exploding-wire E passes, and in which it is packed about with suitable packing to prevent the entrance of air or water through the plug.

The primer F is secured in the cylinder by means of a slotted bar, G, placed loosely beneath the lower edges of the ring J. The primer being placed beneath the bar, and the wire having been passed through its slot, it is evident that by pulling on the wire the primer will be drawn upward against the bar and the ends of the bar be drawn against the ring, where it will be retained so long as tension is made on the wire. The cylinder is charged with powder or other explosive composition or substance, and then fitted with a primer and the plug secured in place, as shown in Fig. 1. The apparatus is then ready to be lowered into a well by its rope D. When it has nearly reached the place where the explosion is desired to take place, the rope is suddenly dropped, while the wire E, which, like the rope, is also to be carried up to the top of the well, is firmly held against slipping, thereby bringing the whole weight of the apparatus to come on the wire, and thereby causing the primer to be exploded.

I claim as new and desire to secure by Letters Patent—

1. An apparatus to be exploded in oil or other deep wells, constructed and operated substantially as above described.

2. Securing a friction-primer within a cylinder for holding powder or other explosive substance by means of a loose slotted bar placed in such cylinder, substantially as shown.

The above specification of my invention signed by me this 24th day of July, 1865.

A. T. BALLANTINE.

Witnesses:

G. W. ANGIER,

G. C. C. CLEMENT.