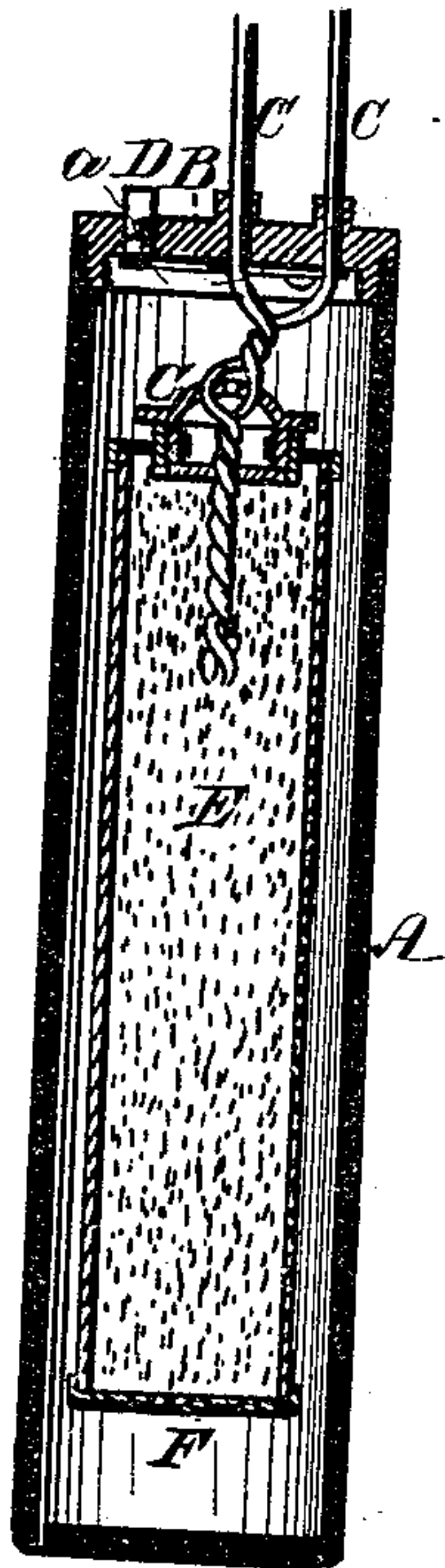


J. DICKEY.  
Torpedo for Oil Wells.

No. 94,813.

Patented Sept. 14, 1869.



WITNESSES

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# UNITED STATES PATENT OFFICE.

JAMES DICKEY, OF VENANGO CITY, PENNSYLVANIA.

## IMPROVEMENT IN TORPEDOES FOR OIL-WELLS.

Specification forming part of Letters Patent No. 94,813, dated September 14, 1869.

*To all whom it may concern:*

Be it known that I, JAMES DICKEY, of Venango City, in the county of Venango, and State of Pennsylvania, have invented a new and useful Improvement in Torpedoes; and I do hereby declare that the following is a full, clear, and 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 the drawing represents a sectional view of my invention, the section being taken through the major axis of the torpedo.

The object of this invention is to provide a torpedo which affords an instantaneous and explosive effect, thereby acting upon the surrounding media with a more instantaneous concussive effect.

The two shells are constructed with appliances conducing to their proper charging and explosion, the torpedo being designed more particularly for exploding in oil-wells, to increase their productiveness, or for submarine blasting.

In the drawings, A is the outer case or shell, and is preferably of cast metal, as iron. It is fitted with a tight screw-cap, B, through which the insulated wires C C pass to enter the inner case E, containing the explosive material. The case E is somewhat smaller than the shell A, so as to afford a sufficient space for containing a quantity of compressed oxygen, as aforesaid. In practice the oxygen may be compressed to any required degree, but I usually prefer to produce a tension of about fifty pounds per square inch.

D is a small screw-plug, which closes the hole in the cap where the gas is injected from a suitable pump. *a* is a spring-valve for preventing the escape of the gas after its removal from connection with the pump, and before the screw-plug D is screwed in.

The torpedo is exploded by an electric spark in the usual manner, and the wires C C pass through the screw-cap G, as shown, thus bringing their proximate ends within the powder-case E. A small perforation is made in the cap of the powder-case so that the pressure within and without may be *in equilibrio*, thus preventing the collapsing of the powder-case from external pressure. The presence of the gas immediately in the powder also conduces to its more instantaneous combustion and explosion which is the point to be attained.

It has been clearly demonstrated from practice that my improved torpedo operates with more beneficial effect in oil-wells than the torpedoes hitherto employed, as the slow ignition and combustion of the latter prevent that instantaneous concussion which produces the most extensive fissures in the adjacent rock.

I desire to be understood as not limiting my invention to the precise construction of the torpedo above described, for the same is subject to many modifications, all involving the principle of the invention, which may be briefly stated as a torpedo provided with an inner receptacle or case containing the explosive material, as powder, gun-cotton, and the like, and with an outer receptacle, shell, or case containing compressed oxygen, the whole being provided with accessory devices for charging with gas and exploding the torpedo by electricity.

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

A torpedo having the space between its inner and outer cases charged with compressed oxygen, substantially as described, for the purpose specified.

JAMES DICKEY.

Witnesses:

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