F. E. HINMAN & F. L. SEELY.
Torpedo for Oil-Wells.

No. 196,977. Patented Nov. 13, 1877.

Fig. 1.

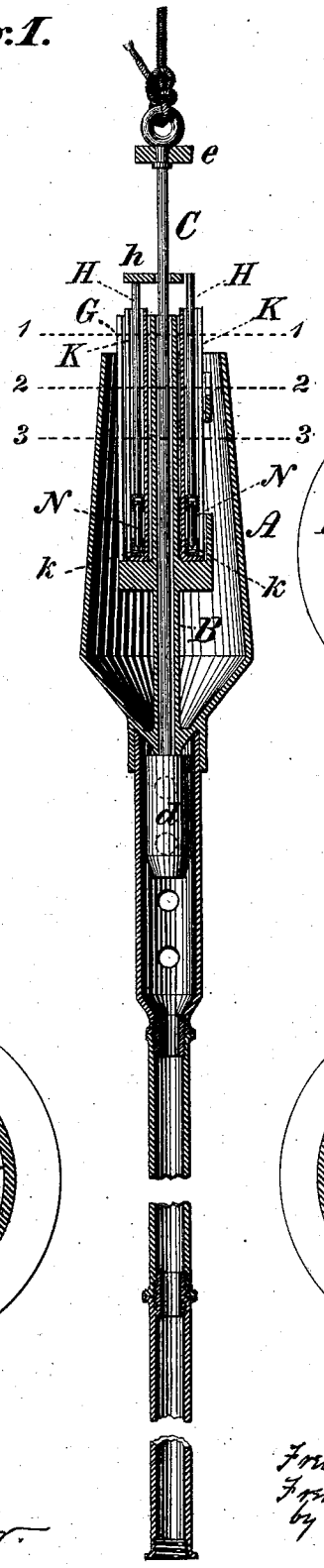


Fig. 2.

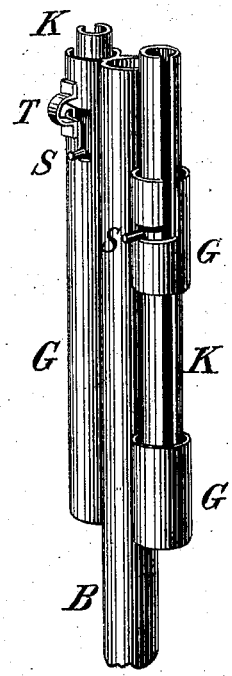


Fig. 3.

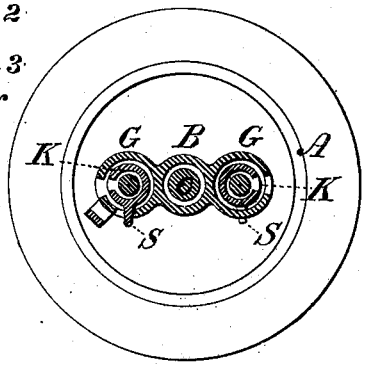


Fig. 4.

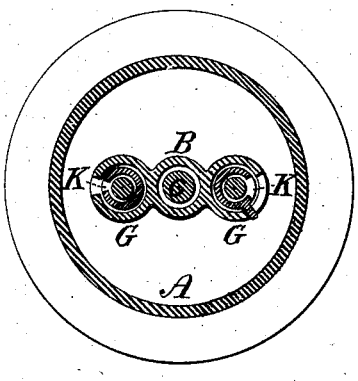
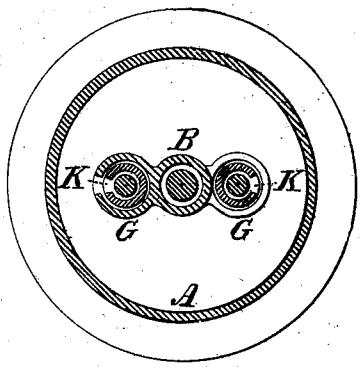


Fig. 5.



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UNITED STATES PATENT OFFICE.

FREDERICK E. HINMAN, OF PETROLIA, AND FREDERICK L. SEELY, OF FRANKLIN, ASSIGNORS TO THE PRODUCERS' TORPEDO COMPANY, OF FRANKLIN, PENNSYLVANIA.

IMPROVEMENT IN TORPEDOES FOR OIL-WELLS.

Specification forming part of Letters Patent No. **196,977**, dated November 13, 1877; application filed October 10, 1877.

To all whom it may concern:

Be it known that we, FREDERICK E. HINMAN, of Petrolia, in the county of Butler and State of Pennsylvania, and FREDERICK L. SEELY, of Franklin, in the county of Venango and State aforesaid, have jointly invented a certain new and useful Improvement in Oil-Well Torpedoes, of which improvement the following is a specification, reference being had to the accompanying drawings, forming part thereof.

Our invention relates to the class of torpedoes of which an example is shown in Letters Patent of the United States No. 179,077, granted, under date of June 20, 1876, to Edward E. Swett, and is especially adapted to this Swett torpedo, although it is equally applicable to any open-shell torpedo in which the charge is fired by the explosion of a cap immersed in the charge.

It has been found, in the use of the Swett torpedo that, even among the best caps to be obtained in the market, defective ones now and then occur, the defects not being ascertainable by inspection, but only demonstrated by their failure to explode. Such a failure, after the torpedo has been located in the well, at a depth varying from one hundred to fifteen hundred feet, necessitates the risk, trouble, and loss of time involved in taking the torpedo out of the well, emptying the charge, removing the defective caps, recharging and recapping the shell, and restoring it to the desired point of explosion in the well. This is all necessary because the caps, being placed upon a loose mandrel slipped into the tube which guides the hammer-rods, as described in said Letters Patent No. 179,077, are not accessible except when the shell is empty, and the handling of a torpedo loaded with nitro-glycerine always demands great care. Now it is the object of our invention to save the trouble and obviate the risk involved in these manipulations of the loaded shell by dispensing with any necessity for taking the torpedo out of the well, or of emptying it and recharging it with glycerine; and to this end our invention consists in a simple device by means of which the caps can be removed and replaced while the torpedo remains charged, and at least partially in the well.

In the accompanying drawings, Figure 1 is a vertical longitudinal section of the Swett torpedo with his improved sheath and strut, and with our improvements applied. Fig. 2 is a detached view, in perspective, of the central tube B for the weighted rod, and our improved tube K in two forms of application; Fig. 3, a horizontal section at the line 1 1 of Fig. 1; Fig. 4, a similar section at the line 2 2 of Fig. 1; and Fig. 5 a similar section at the line 3 3 of Fig. 1.

The shell A is made, as described in said Letters Patent No. 179,077, with tubes B and G, hammer-rod H, weighted rod C *d e*, and bar *h*; but instead of placing the caps directly in the tube G, as described in said Patent 179,077, we place within the tube G a smaller slotted tube, K, having at the bottom an anvil, *k*, and moving freely in the tube G. This tube K is somewhat longer than the tube G, and protrudes above the latter, so that it can be readily removed with the fingers while the shell remains in a vertical position. The mandrel N, upon which the caps are placed, is dropped in this tube K, the lower cap resting upon the anvil *k* at the bottom of the tube.

The shell being charged with glycerine, the mandrel N, with a cap upon each end of it, is placed in the tube K, instead of, as formerly, in the tube G. The hammer-rod H is then slipped into the tube K, so as to rest upon the cap on the upper end of the mandrel. The torpedo is then lowered in the well, and fired, as usual, by dropping the rod C.

In case of a failure to explode, it is only necessary to raise the torpedo above the mouth of the well far enough to enable one to raise the hammer-rod H out of the tube K, and then raise the tube K, with the mandrel and caps in it, out of the tube G, leaving the shell and the charge otherwise undisturbed. The mandrel is tilted out of the tube K, freshly capped, replaced in the tube K, the tube K replaced in the tube G, the hammer-rod H replaced in the tube K, and the torpedo is ready to be lowered again and fired.

In Fig. 2 we have shown a modification of

the tube G, which, it will be seen in our improved construction, is no longer required to perform any function other than that of a holder for the tube K, and, by way of preventing any displacement of the tube K in moving the torpedo up or down, we put a pin or teat, S, upon one side of the tube K, and a slot and loop, T, on the tube G, making a bayonet-fastening or like connection between the two tubes G and K, holding the latter in place.

We also contemplate dispensing entirely with the tube G, and simply providing the tube K with a hook or flange catching over and upon the tube B, or upon a guide or projection on said tube; in short, the tube K may be supported in any one of various ways against the blow of the weighted rod upon the mandrel, which is the only downward force it has to resist, but it must, in no case, be so connected with its support that it cannot be readily removed as above described, the gist of our invention consisting in the mode of removing and replacing the mandrel and the caps without necessarily emptying the charge or disturbing the perpendicular position of the shell.

We do not claim the weight-sheath, nor the strut, nor the combination of either or both these parts with the torpedo, as they are the invention of Edward E. Swett, and constitute the subject-matter of an application filed by him simultaneously herewith.

Having thus described the nature and objects of our invention, what we claim as new, and desire to secure by Letters Patent, is—

The combination, with the shell A, of the removable tube K, substantially as and for the purposes set forth.

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Witnesses:
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