S. L. KING.

Torpedo for Oil-Wells.

No. 221,830. Patented Nov. 18, 1879.

Fig. 1.

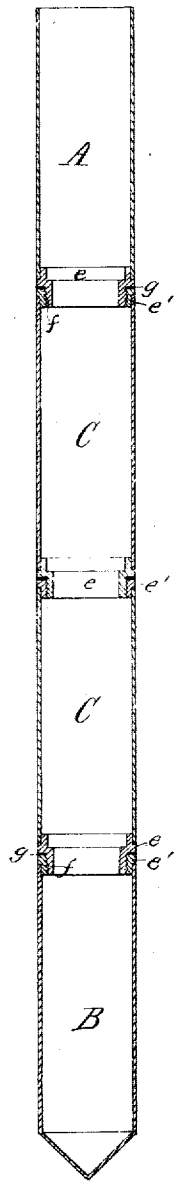


Fig. 3.

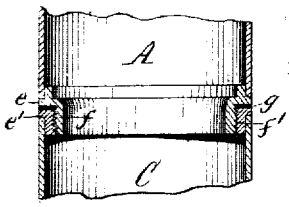
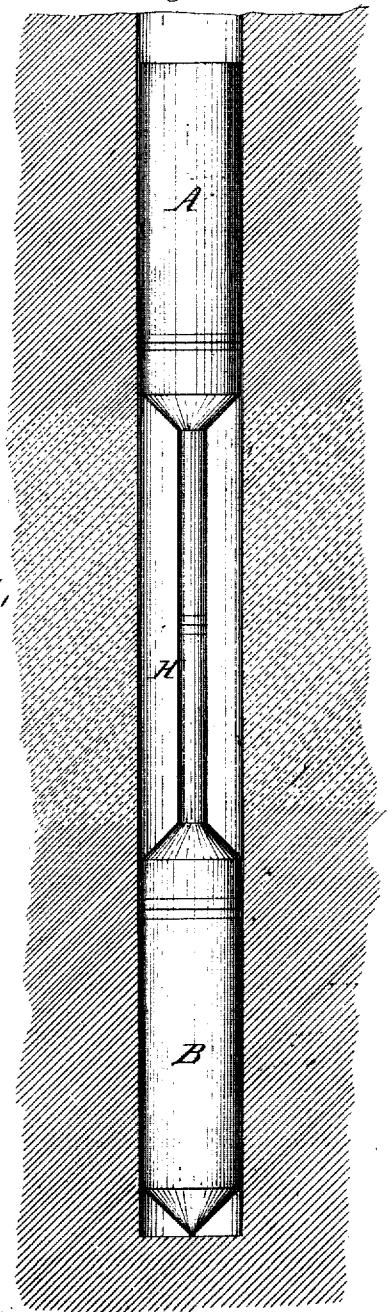


Fig. 2.



Witnesses.
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UNITED STATES PATENT OFFICE.

SILAS L. KING, OF BRADFORD, PENNSYLVANIA.

IMPROVEMENT IN TORPEDOES FOR OIL-WELLS.

Specification forming part of Letters Patent No. **221,830**, dated November 18, 1879; application filed May 7, 1879.

To all whom it may concern:

Be it known that I, SILAS L. KING, of Bradford, in the county of McKean and State of Pennsylvania, have invented a new and useful Improvement in Torpedoes for Oil-Wells, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates more especially to the construction of the shell or casing of that class of torpedoes which are exploded in oil-wells for opening the oil-bearing seams of the surrounding rock. These torpedo-shells are generally made in one piece, and of various lengths, according to the charge which they are designed to contain, as the diameter of the shell is limited by the size of the bore of the well.

Torpedoes of this kind which are designed to hold a heavy charge are made very long, sometimes reaching a length of fifteen feet or more, and are consequently very unwieldly and inconvenient in transporting, handling, and filling. This mode of construction is further objectionable, as it necessitates the keeping on hand of a large number of shells varying in length or capacity, from which assortment the shell which answers the requirements of a particular case has to be selected.

The object of my invention is to remedy these difficulties; and it consists, first, in constructing the torpedo-shell of sections of tin, sheet-iron, or other thin metal, and providing the ends of the sections with screw-couplings arranged within the sections, whereby any desired number of sections can be readily secured together when required for forming a torpedo of the desired size; also, in the particular construction of the couplings, as hereinafter fully set forth.

In the accompanying drawings, Figure 1 is a sectional elevation of my improved torpedo. Fig. 2 is a similar view, showing the shell constructed with a reduced portion. Fig. 3 is a detached sectional view, on an enlarged scale, of the screw-couplings by which the sections are secured together.

Like letters of reference designate like parts in the several figures.

A represents the upper section of the torpedo-shell, provided with an exploding device of any ordinary and well-known construction. B is the bottom section of the shell, having a closed conical bottom of the usual form.

C represents the intermediate sections, constructed with open ends, and secured to each other and the top and bottom sections by a screw-coupling consisting of a ring or annular flange, *e*, soldered to the open end of one section, and provided with a male screw-thread, *f*, and a similar ring, *e'*, soldered to the open end of the adjacent section, and having a female screw-thread, *f'*.

A packing-ring, *g*, of rubber or other suitable material, is preferably arranged between the rings *e e'* in securing the sections together to form a tight joint.

The sections A B C are made as nearly as possible of uniform length, preferably about twenty inches, so that they can be packed in a small space for transportation.

In using my improved torpedo a number of sections capable of holding the charge which is intended to be employed are secured together and filled with the explosive. The torpedo is then lowered into the well, and exploded in any ordinary and well-known manner.

It frequently happens that the strata of oil-bearing rock are separated by non-productive strata of shale-rock. In such cases it is desirable to place between the torpedo-sections A and B in Fig. 2, which receive the exploding-charges, a connecting portion, H, of reduced diameter and of proper length, by which the two torpedoes A and B are held at such a distance apart that when the upper torpedo, A, is opposite the upper stratum of oil-bearing rock the lower torpedo will be opposite the lower stratum of oil-bearing rock. The connecting-tube H is filled with the explosive, and serves at the same time as a connecting-fuse, so that both torpedoes will be exploded at the same time.

It is obvious that each torpedo A B may consist of any required number of sections, and that the connecting-tube H is also preferably made in sections, secured together in the same manner as the sections of the torpedo proper.

I claim as my invention—

1. A torpedo-shell constructed of sections of tin, sheet-iron, or other thin metal, and having the ends of contiguous sections provided with an interiorly-arranged screw-coupling, *e e'*, substantially as and for the purpose set forth.

2. The coupling for connecting the different sections of the shell, consisting of the rings or flanges *e e'*, provided with screw-threads *f f'*, and located within the ends of the sections, so as to preserve a smooth exterior when the sections are connected, substantially as set forth.

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Witnesses:
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