J. BRISCOE.

Torpedo for Oil-Wells.

No. 205,040. Patented June 18, 1878.

Fig. 1.

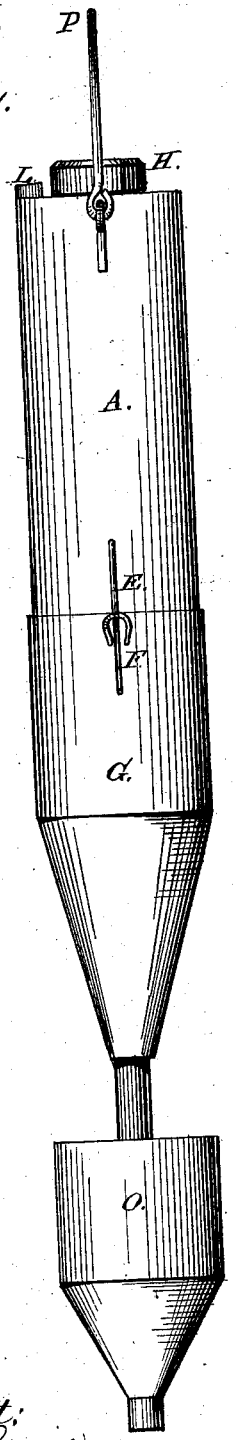


Fig. 3.

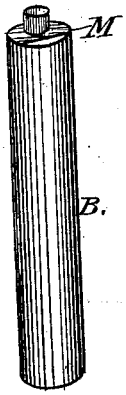
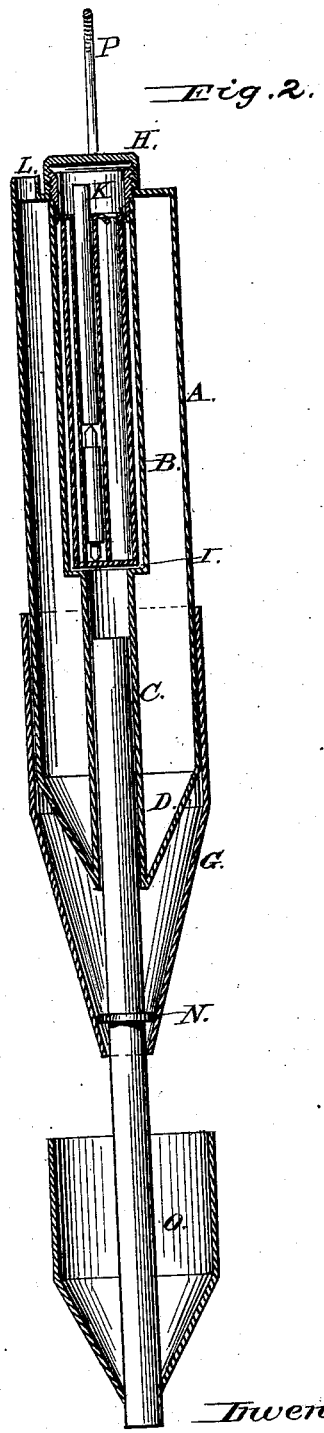


Fig. 4.

Fig. 2.



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UNITED STATES PATENT OFFICE.

JOHN BRISCOE, OF PETROLIA, PENNSYLVANIA.

IMPROVEMENT IN TORPEDOES FOR OIL-WELLS.

Specification forming part of Letters Patent No. **205,040**, dated June 18, 1878; application filed April 29, 1878.

To all whom it may concern:

Be it known that I, JOHN BRISCOE, of Petrolia, in the county of Butler and State of Pennsylvania, have invented certain new and useful Improvements in Self-Exploding Torpedoes, of which the following is a specification:

This invention relates to certain improvements in the construction of torpedoes for oil-wells, of that class in which the charge is fired by the jar given the torpedo on lowering it into the well; and it has for its object to provide a torpedo which may be filled with the explosive material before inserting the firing-head, which contains the cap or fulminate, whereby the liability of the torpedo to explode during the process of filling and handling is, in a great measure, obviated; and, further, to so construct and combine the parts of the torpedo as to better guide the shell and prevent accidents while it is being lowered into the well, and insure the firing of the charge when it reaches the bottom of the well.

To this end my invention consists, first, in the combination, with the firing-head, of a removable cap above, for protecting the firing-head, and a reciprocating anchor-stem below, whereby the firing-head is forced upward against the firing-cap when the shell is lowered into the well, substantially as specified; second, in an oil-well torpedo, the combination of an annular shell, having an inner chamber formed with a shelf or shoulder, a firing-head supported by and having room for longitudinal play above said shelf or shoulder, and an anchor-stem playing in the lower portion of the said inner chamber, and so guided as to strike and force upward the firing-head when the torpedo is lowered to the bottom of a well, and a suitable stop for preventing the firing-head from escaping from the inner chamber, substantially as hereinafter described.

Figure 1 represents a side elevation of my improved torpedo; Fig. 2, a sectional view thereof. Fig. 3 represents a detached perspective view of the firing-head, and Fig. 4 a similar view of the firing-pin.

The letter A represents the main shell, constructed of sheet metal, and annular in cross-section, the annular chamber forming the magazine for the nitro-glycerine, and the interior chamber serving to hold the firing-head B, and to form a guide for the reception of the upper part of the anchor-stem C. Said shell is provided with a tapering or conical bottom, D, and has attached to its lower end, by means of the hooks E and eyes F, a removable supplementary shell, G, having also a tapering or conical bottom. The anchor-stem C passes loosely through the bottom of the shell G, and extends upwardly into the interior chamber of the main shell, terminating, when the parts are in their normal positions, below the lower end of the firing-head B, but constructed of such length that when the torpedo reaches the bottom of the well and the main shell is dropped, said stem will come in contact with the firing-head and force it upward against the firing-cap H to explode the charge. Said firing-head B consists of a cylindrical tube, of such diameter as to fit loosely in the upper or enlarged part of the inner chamber of the main shell of the torpedo, its lower end resting upon the shoulder I, formed by enlarging said chamber. The said firing-head is of such a length as to be capable of a slight longitudinal play in its chamber, and it is provided with a longitudinal tube, extending from end to end, and open at its upper end for the reception of the firing-pin K. Said pin is constructed in two parts, the lower one being provided with points at each end for the reception of ordinary percussion-caps, the upper part resting upon said lower part, and having its upper end projecting sufficiently above the tube to come in contact with the firing-cap H when the main shell is dropped on the anchor-stem and explode the percussion-caps.

The firing-cap H is threaded internally, and is secured to a screw-threaded seat formed on the upwardly-extended portion of the partition which forms the inner chamber of the main shell, so that it can be removed for the insertion of the firing-head, and replaced to secure said head and hold it and its parts in the chamber.

The main shell is provided at its upper end with an opening, L, extending into the annular chamber, for the insertion of the nitro-glycerine, and the firing-head with a similar opening, M, for the insertion of a small quantity of nitro-glycerine, to be fired by the caps when

exploded, and communicate the explosion to the charge in the outer shell.

The anchor-stem is provided with a shoulder, N, above the bottom of the supplementary shell, by means of which said stem is prevented from dropping out, and at its lower end is secured to the apex of a cylindrical shell, O, having a conical bottom, and which forms the anchor-shell or sand-weight of the torpedo. This shell is intended to be filled with sand, in order to keep the anchor-stem down as the torpedo is being lowered in the well, and prevent the parts of the torpedo from crowding upon each other and firing the charge before the torpedo reaches the bottom of the well.

The main shell is provided with a bail, P, at the top, by means of which it may be secured to a cord or line to be lowered into the well.

The operation of my invention will be readily understood in connection with the above description.

In filling the shell with the explosive, the cap and firing-head are removed, and the annular space in the main shell is charged through its opening at the top, which may then be closed in any convenient manner. The shells in this condition may be stored for use, and the firing-head, with its pin, secured in place just before dropping the torpedo into the well. The explosion is caused, when the torpedo reaches the bottom of the well, by the main shell dropping upon the anchor-stem, which brings its upper end in contact with the firing-head, causing it to strike against the firing-cap and explode the percussion-caps. The fire is communicated from there to the explosive charge in the firing-head, which is sufficient to burst the partition in the interior of the main shell, so as to fire the charge of nitro-glycerine.

What I claim is—

1. The combination of the annular shell A, having its inner chamber formed with a shoulder, I, the firing-head B, having longitudinal play above said shoulder, the anchor-stem playing in the lower portion of the said inner chamber, and a suitable stop for preventing the escape of the firing-head, substantially as described.

2. In a torpedo for oil-wells, the combination, with the removable firing-head, of a removable cap above and a reciprocating anchor-stem below, whereby the firing-head is forced against said firing-cap and the charge exploded, substantially as specified.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of the subscribing witnesses.

JOHN BRISCOE.

Witnesses:
C. H. CRAMER,
WILLIAM BESS.