(No Model.)

W. S. LOWE & G. W. VAN RENSSELAER.

TORPEDO CASE.

No. 482,060. Patented Sept. 6, 1892.

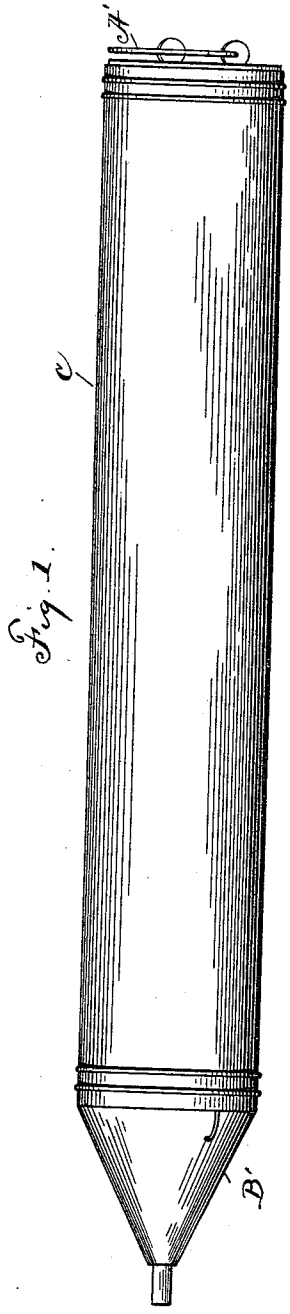

Fig. 1.

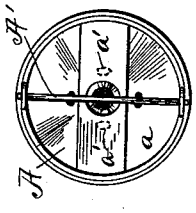

Fig. 3.

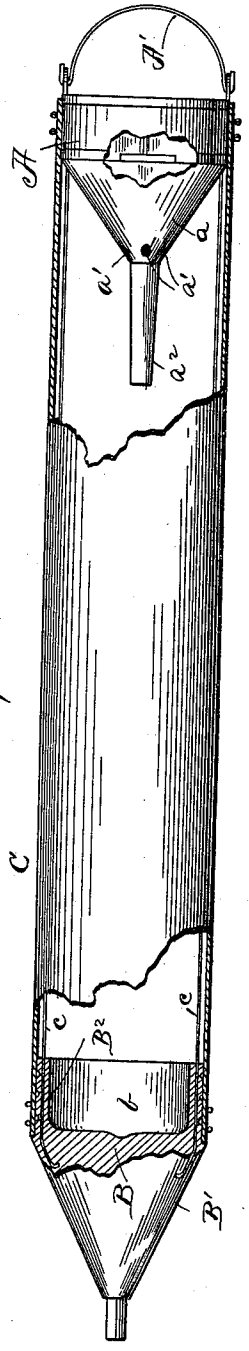

Fig. 2.

Witnesses.
E. Byron Gilchrist

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William S. Lowe
and
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By Riggs & Riggs
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM S. LOWE AND GERDON W. VAN RENSSELAER, OF LIMA, OHIO.

TORPEDO-CASE.

SPECIFICATION forming part of Letters Patent No. 482,060, dated September 6, 1892.

Application filed August 27, 1891. Serial No. 403,900. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM S. LOWE and GERDON W. VAN RENSSELAER, of Lima, in the county of Allen and State of Ohio, have invented certain new and useful Improvements in Torpedo-Cases; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

Our invention relates to improvements in torpedo-cases, more especially for nitro-glycerine torpedoes, such as are used in shooting oil-wells, in which a somewhat flexible casing, usually of waterproof paper, is employed, to the end of reducing the initial cost and that the torpedo is less likely to "stick" in lowering it into the well and is less liable to explode by rubbing against the walls of the well in its descent.

In order to produce the best effect in shooting an oil-well, it is necessary to have the explosive in a compact form as near the bottom of the well as possible, and to this end it is important to use a torpedo as large in diameter as can with safety and with certainty be lowered into the well.

In view of the foregoing we have devised the torpedo-shell illustrated in the accompanying drawings.

Figures 1 and 2 are side elevations, portions of the latter being broken away to show the internal construction. Fig. 3 is a plan.

A represents, substantially, a tin cup having a bail A′ and a conical bottom *a*, with holes *a*′, and a depending open-ended tube a^2, all constructed substantially as heretofore. Member B is supposed to be of wood and constitutes the point or bottom of the torpedo-shell, this member being conical at B′ and having a reduced cylindrical section B^2, to which latter the side walls C are attached, and being hollowed out, as at *b*, so that the explosion of the torpedo will shatter the wooden member to atoms. Preferably two wires or more *c* connect the tin and wooden members A and B to prevent the possibility of the bottom being disconnected by accident. The side walls C are constructed, preferably, of strong waterproof paper or other flexible material, either made waterproof in the manufacturing or afterward coated with waterproof material, and such coating may be done before or after the torpedo-shell has been constructed. The paper is cemented in the cylindrical form required, and is cemented or otherwise secured to members A and B. The torpedo-shell thus constructed is afterward filled and operated as heretofore. Paper for this purpose is better than tin or other sheet metal heretofore used, and the rubbing of the paper shell in its descent against the walls of the well will not explode any nitro-glycerine that may be adhering to the outside of such paper casing. A torpedo for the purpose is of considerable weight, and the paper walls, being flexible, will pass obstructions that would stick in an inflexible casing. Hence a larger torpedo can be used than could safely be used where the walls thereof were of metal. Member B could be constructed of tin or other sheet metal; but this would only increase the expense without any benefit accruing, and hence we prefer the wood.

What we claim is—

1. A torpedo-shell the side walls whereof are composed of flexible material and the ends of rigid material and the connecting devices extending from one end to the other and located within the shell.

2. A torpedo-shell comprising side walls, the bottom located at one end and a perforated cup located at the opposite end, substantially as set forth.

3. In a torpedo-case, the combination, with a cylindrical shell, of a bottom having a conical lower end and a concaved upper end, substantially as set forth.

4. The combination, with a body portion, of a top provided with a conical inner end having perforations therein and a bottom having a conical outer end and a concaved inner end, substantially as set forth.

In testimony whereof we sign this specification, in the presence of two witnesses, this 6th day of April, 1891.

WILLIAM S. LOWE.
GERDON W. VAN RENSSELAER.

Witnesses:
D. J. CABLE,
HENRY W. NEFF.