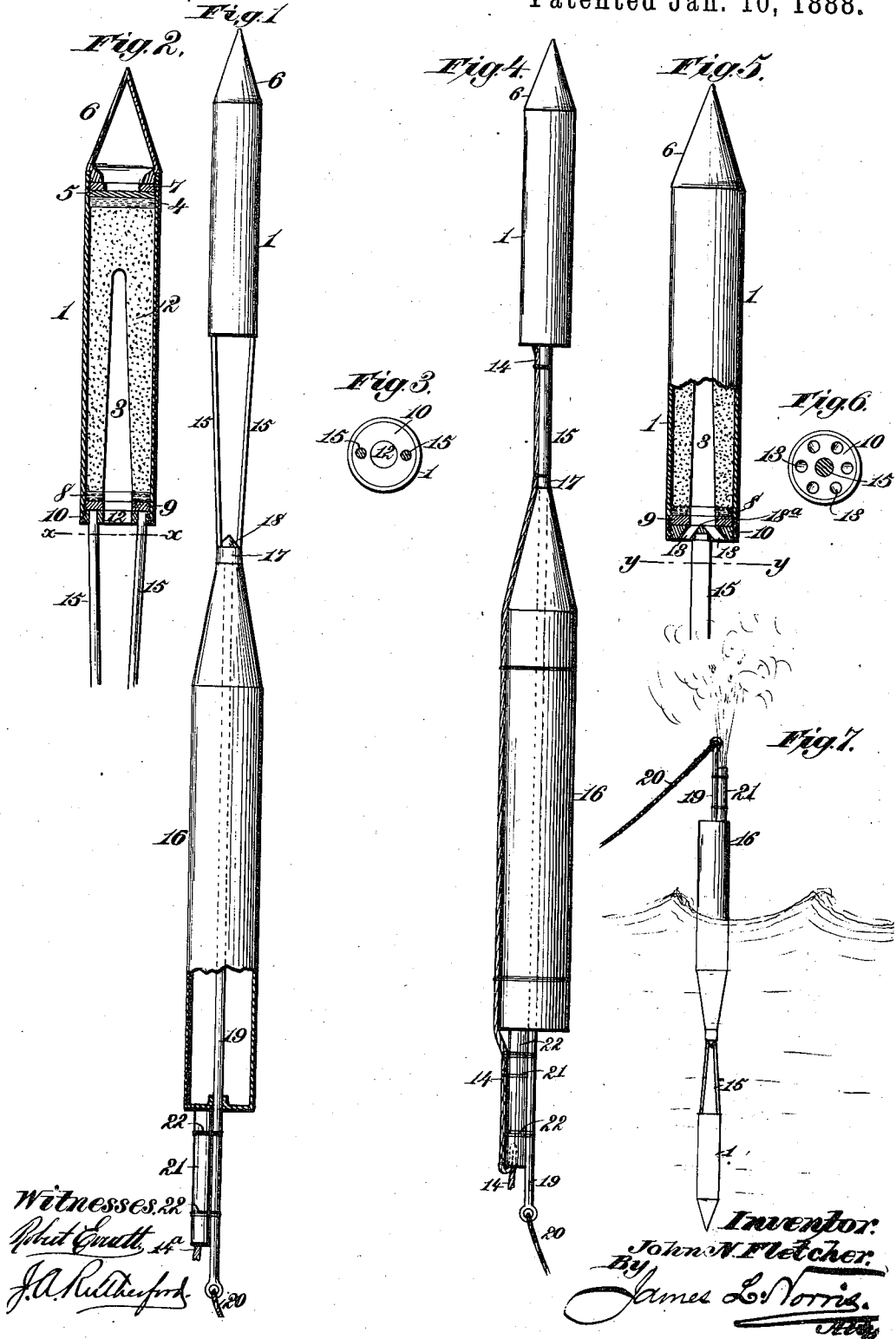


(No Model.)

J. N. FLETCHER.
LINE THROWING PROJECTILE.

No. 376,375.

Patented Jan. 10, 1888.



UNITED STATES PATENT OFFICE.

JOHN N. FLETCHER, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO THE
UNEXCELLED FIREWORKS COMPANY, OF NEW YORK, N. Y.

LINE-THROWING PROJECTILE.

SPECIFICATION forming part of Letters Patent No. 376,375, dated January 10, 1888.

Application filed November 10, 1887. Serial No. 251,811. (No model.)

To all whom it may concern:

Be it known that I, JOHN N. FLETCHER, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented new and useful Improvements in Line-Throwing Projectiles, of which the following is a specification.

This invention relates to an improved projectile for carrying life-saving or other lines between ship and shore, or from one ship to another; and it consists in certain peculiarities in the construction of a rocket and its attachments for conveying a line; in the combination, with such rocket, of a float or buoy for sustaining the line on the surface of the water, especially if it should fall to one side or the other, or not quite reach its intended destination, and in the combination, with the rocket and float, of a signal-torch that may be ignited before or simultaneously with the discharge of the rocket, for the purpose of indicating the position of the line and facilitating its discovery by those to whom it is thrown.

The invention also embraces novel features of construction, hereinafter described and claimed.

In the accompanying drawings, illustrating the invention, Figure 1 is a sectional side elevation of my improved life saving rocket, with buoy or float, torch, and life-line. Fig. 2 is an enlarged longitudinal section of the rocket. Fig. 3 is a cross section on the line *xx* of Fig. 2. Fig. 4 is a side elevation of the life-saving device, with rocket and torch arranged for simultaneous ignition. Fig. 5 is a sectional view of the rocket provided with radiating or diverging vents. Fig. 6 is a cross-section on the line *yy* of Fig. 5. Fig. 7 represents the rocket after it has been discharged and while it is floating, with life-line attached, and torch or signal burning to indicate its location in the water.

The rocket consists of a cylindrical shell or casing, 1, preferably composed of metal and containing a slow-burning composition, 2, for developing the power by which the projectile is to be thrown. In the center of this composition is a hollow longitudinal core, 3, to afford access for air and insure a thorough ignition

of the composition from within outward. At the forward end of the rocket the composition 2 is covered with a layer of clay, 4, over which is placed a metal disk, 5, that is laid in, and an externally-threaded ring, 5^a, that is screwed in, and a conical head, 6, is then screwed into the end of the shell or casing 1, which is internally threaded to correspond with a threaded neck, 7, formed on the head. This conical head may be either hollow or solid, and can be formed of metal, wood, or other suitable material, and may be filled with a detonating or illuminating composition.

In the rear end of the casing 1, next to the composition 2, is an annular layer of clay, 8, and outside of the clay is a metal choke, 9, and a metal fuse-piece, 10, both of which are exteriorly threaded to enable them to be screwed into engagement with the internal threads formed in the end of the rocket-casing. The fuse-piece 10 may have a central fuse opening or vent, 12, as shown in Figs. 2 and 3, or it may be formed with a series of diverging or radiating vents, 13, as shown in Figs. 5 and 6, through one of which a fuse, 14, can be inserted, as shown in Fig. 4.

The fuse-piece 10 affords attachment for the shaft or shafts 15, by which a buoy or float, 16, is connected with the rocket-case. The shafts 15 are preferably in the form of metal rods. As shown in Figs. 1, 2, and 3, two of these shafts or rods may be used to connect the float and rocket-case, their forward ends being secured in openings formed in the fuse-piece 10 on each side of the central fuse-opening, 12, while their rear ends are secured to a coupling, 17, fastened to the float. This construction is particularly applicable to a fuse-piece having a central fuse opening or vent. If the fuse-piece is provided with a series of diverging vents 13, as shown in Figs. 5 and 6, a single shaft or rod, 15, can be secured in its center and connected, as before, with the coupling 17 on the float or buoy.

The radiating or diverging vents 13 (shown in Fig. 5) serve to spread the escaping gases and other products of combustion and cause them to exert a proper repulsive force in the atmosphere to propel the rocket accurately in the desired course. When a central vent or

fuse-opening, 12, is employed, as in Fig. 2, a similar spreading of the products of combustion can be accomplished by securing a conical deflector, 18, to the forward end of the float, as shown in Fig. 1. In the form of construction shown in Fig. 5 a deflector, 18^a, is formed on the inner face of the fuse-piece by the convergent inner ends of the vents.

The float or buoy 16 is preferably composed of metal in the form of a hollow cylindrical body closed at both ends, the forward end being made tapering or conical to pass readily through the air. If preferred, the float may be made of wood or other material instead of metal.

A metal rod or shaft, 19, is passed longitudinally through the center of the float 16, as shown in Figs. 1 and 4. One end of this rod or shaft 19 is secured to the coupling 17, and the other end projects beyond the float and serves for the attachment of a life-line, 20, and a torch or signal light, 21, by which the line can be discovered after the projectile has been thrown.

The signal-torch 21 consists of a cylindrical casing fastened securely to the rod or shaft 19, by means of cords or wires 22, or otherwise, and contains a suitable composition for emitting smoke and light when ignited. This torch may have a fuse, 14^a, Fig. 1, to be lighted before the rocket is fired, or a single fuse, 14, Fig. 4, can be employed for igniting the torch and rocket simultaneously.

In a projectile for throwing a line from ship to shore, or the reverse, an attached float and signal-light affords the advantage of enabling the line to be more readily discovered and laid hold of by those to whom it is thrown, especially at night, or if the projectile should fall into the water.

It may be remarked that the float 16 is so much more buoyant than the other parts of the device that the entire projectile will necessarily assume a vertical position with the float uppermost should the projectile fall into the water, and thus the attached signal-light, as shown in Fig. 7, will be effectively displayed above the surface. The device is thus adapted for locating a line thrown to a person overboard, as well as for carrying a line between ship and shore. The float, being elongated and cylindrical in form, also serves as a stick for guiding the projectile in its flight.

What I claim is—

1. In a line-throwing projectile, the combination of a rocket, a float or buoy connected with the rear end of the rocket-case, and a signal-torch connected with the float or buoy, substantially as described.

2. In a line-throwing projectile, the combination of a rocket, a float or buoy connected with the rear end of the rocket-case, a signal-torch connected with the float or buoy, and a fuse connecting the torch and rocket, whereby they can be simultaneously ignited, substantially as described.

3. In a line-throwing projectile, the combination of a rocket, a float or buoy, a rod or shaft connecting the float and rocket-case, a rod or shaft projecting from the rear end of the float, and a signal-torch fastened to said rod, substantially as described.

4. In a line-throwing projectile, the combination of a rocket, a float or buoy, and a rod or shaft having one end secured to the fuse-piece of the rocket and the other end to a coupling on the float, substantially as described.

5. A line-throwing projectile consisting of a metallic rocket-case having a fuse-piece provided with a central conical deflector and a surrounding series of diverging vents opening on the rear surface of said fuse-piece, a float or buoy connected with the rear end of the rocket-case, and a signal-torch and life-line connected with the float, substantially as described.

6. The combination, with a metal rocket-case and inclosed composition, of the clay layer 4, metal disk 5, metal ring 5^a, and conical head 6 in the forward end of the rocket-case, and the clay ring 8, metal choke 9, and metal fuse-piece 10 in the rear end of said case, substantially as described.

7. The combination of a metal rocket-case, a metal choke, 9, and a metal fuse-piece, 10, having a central conical deflector, 18^a, formed integral with said fuse-piece, and a surrounding series of diverging vents, 13, opening on the rear surface of the fuse-piece, substantially as described.

In testimony whereof I have affixed my signature in presence of two witnesses.

JOHN N. FLETCHER.

Witnesses:

J. A. RUTHERFORD,
GEORGE W. REA.