E. PIERCE.

Bomb-Lance.

No. 211,778. Patented Jan. 28, 1879.

Fig. 1.

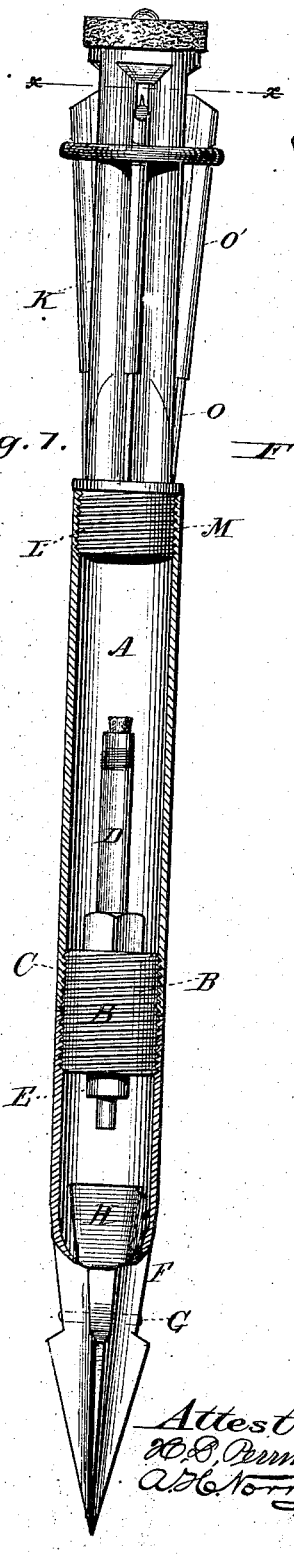


Fig. 2.

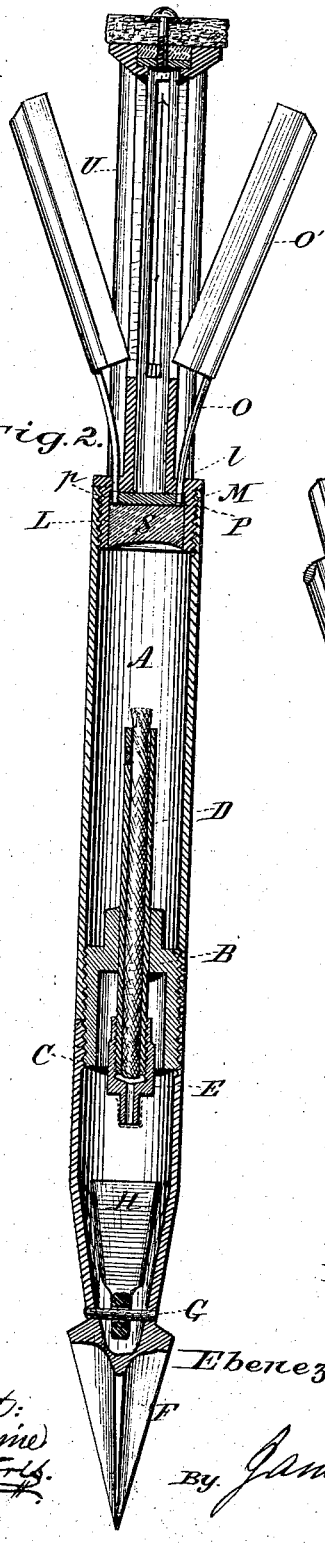
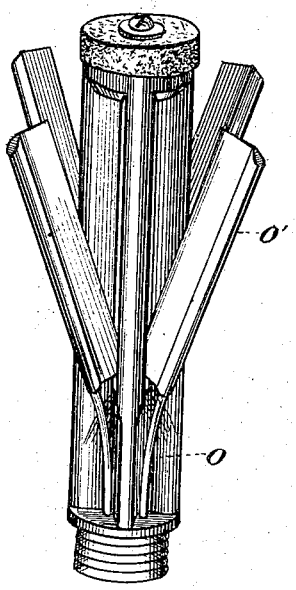


Fig. 3.



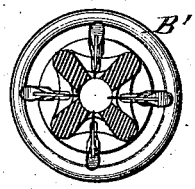


Fig. 4.

Witnesses:
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By James L. Norris
Atty.

UNITED STATES PATENT OFFICE.

EBENEZER PIERCE, OF NEW BEDFORD, MASSACHUSETTS.

IMPROVEMENT IN BOMB-LANCES.

Specification forming part of Letters Patent No. **211,778**, dated January 28, 1879; application filed December 20, 1878.

To all whom it may concern:

Be it known that I, EBENEZER PIERCE, of New Bedford, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Bomb-Lances, of which the following is a specification:

This invention relates to certain improvements in that class of bomb-lances for killing whales and other animals in which a charge of powder or other suitable explosive contained in a proper magazine is ignited by means of a fuse fired by a cap which is exploded by a suitable hammer or plunger operated by the concussion caused by the discharge of the gun.

My invention has for its object to provide a means by which a fresh surface of the fuse may be exposed to the fire of the cap, so as to insure the ignition of the said fuse; to provide an improved means of securing the spring-arms of the guide wings or feathers to the tail-piece of the lance, and at the same time close the central aperture of the tail-piece of the lance and the apertures through which said arms pass, so as to prevent the fire at the discharge of the gun from communicating with the magazine of the lance; and to so construct and arrange the guide wings or feathers as to insure greater accuracy in the flight of the lance.

My invention consists, first, in the combination, with the screw-threaded plug secured in the forward end of the magazine, of a fuse-tube provided with a detachable cover, carrying a nipple, whereby the fuse may be cut off at the end when the lance is about to be used, so as to present a fresh surface to the fire when the cap is exploded to insure the ignition of the fuse; second, in a fuse-tube for a bomb-lance having a segmental slot at or near its rear end or other portion, whereby the fuse may be confined in place by means of a cord, wire, or other binding device; third, in the combination, with the magazine of a bomb-lance, a screw-threaded shank fitting in the rear of the magazine, and provided with a rearward extension, having fluted sides and slotted longitudinally for the reception of the wings, which are adapted to spring in and out of the slots radially from and to a common center, as more fully hereinafter specified.

In the drawings, Figure 1 represents an elevation of my improvement, with parts broken away. Fig. 2 represents a sectional view of my improvement. Fig. 3 represents a perspective view of the tail-piece, with wings open; and 4, a cross-section of the same, showing the wings closed.

The letter A represents the magazine of a bomb-lance, consisting, as usual, of a hollow cylinder of suitable diameter and length. The letter B represents a plug, externally screw-threaded and adapted to fit into a female screw-thread, C, in the forward end of the magazine A. Through said plug extends the fuse-tube D, passing rearwardly into the magazine, and terminating therein, the forward end of said tube being externally screw-threaded for the reception of a removable cover carrying a nipple, E, which is internally screw-threaded, in order to fit upon the end of said tube.

The letter F represents the lance-point, which is recessed and screw-threaded internally to fit upon the external screw-thread of the plug B; and within the recess in said lance-point is secured, by means of a pin, G, of wood or other easily-broken material, a hammer or plunger, H, which, by the concussion of the explosion of the charge, breaks and releases the hammer, which strikes and fires the cap on the cap-nipple.

The rear end of said fuse-tube terminates, as before mentioned, within the magazine, so as to ignite the contents of the same when the fuse contained in said tube is sufficiently burned out.

The letter K represents the tail-section of the lance. This consists of an externally screw-threaded shank, L, adapted to fit in an internal or female screw, M, at the rear end of the magazine A.

The said shank is reamed out from its front, forming a recess for the reception of a metal disk, P, and is provided with a rearward extension, to be hereinafter described.

I prefer, for convenience, to cast the two hollow and in one piece. The spring-arms of the wings O′ pass through apertures *l* in the base of the shank, and sit in similar apertures *p* in the disk P. The disk and the spring-arms are held in place by a filling of solder, S, the disk serving the additional purpose of closing the central aperture when the tail-piece is cast

hollow, so as to prevent the communication of fire with the magazine of the lance at the discharge of the gun. The said shank is provided with a rearward extension, U, having longitudinally-fluted sides, and slotted longitudinally from the shank to a point near its rear end, said rear end being cylindrical in form and provided with suitable wad of felt, or other suitable material, to fill the bore of the gun and prevent windage.

The wings are four in number in the present instance, although more or less may be employed. Said wings are approximately of the form of a wedge in cross-section, by means of which the utmost strength with a minimum of metal is secured, thus enabling the edge of the wings to be made exceedingly thin, so as not to retard the flight of the lance when projected through the air or into the water or body of the animal, and to readily close in place in the slots of the tail-piece on entering the body of the whale. The wings are secured to the spring-arms before mentioned, and are adapted to spring out of the slots radially from a common center the instant the lance is discharged from the gun, whereby in its passage or flight through the air it will not deviate from its proper course, and on its entering the body of the whale the said wings will be easily forced into their respective slots with the least possible amount of frictional surface.

As before mentioned, I prefer to cast the shank and its extension hollow and in one piece, with the flutes or grooves at the sides, the slots being afterward cut by means of a suitable tool. I do not, however, intend to confine myself to this method of construction, as the thimble and its extension may be constructed in two parts and properly secured together; or they may be cast in one piece, with the flutes and slots complete.

The letter B′ represents a ring, adapted to be slipped over the tail-piece and the wedges, so as to press the wings radially into their respective slots, for convenience in handling and packing for transportation, and for effecting with comparative ease and facility, the insertion of the lance into the barrel of the gun. The rear ends of the wings are also chamfered off, so that they will be automatically forced in as the lance is inserted in the gun, thus facilitating the operation.

What I claim as my invention is—

1. In combination with the magazine of a bomb-lance, an externally screw-threaded removable plug, through which extends a fuse-tube, the forward end of which is provided with a detachable cover, carrying a nipple for receiving a gun-cap, to be exploded by a suitable plunger, substantially as and for the purpose specified.

2. A fuse-tube for a bomb-lance having a segmental slot at or near its rear end or other portion, whereby the fuse may be confined in place by means of a cord, wire, or other binding device, substantially as specified.

3. In combination with the magazine of a bomb-lance, a screw-threaded shank fitting in the rear of the magazine, and provided with a rearward extension having fluted sides, and slotted longitudinally for the reception of the wings, which are adapted to spring in and out of said slots radially to and from a common center, substantially as specified.

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

EBENEZER PIERCE.

Witnesses:
JAMES L. NORRIS,
JAS. A. RUTHERFORD.