(No Model.)

D. KELLEHER.

BOMB LANCE.

No. 472,889. Patented Apr. 12, 1892.

FIG. 1.

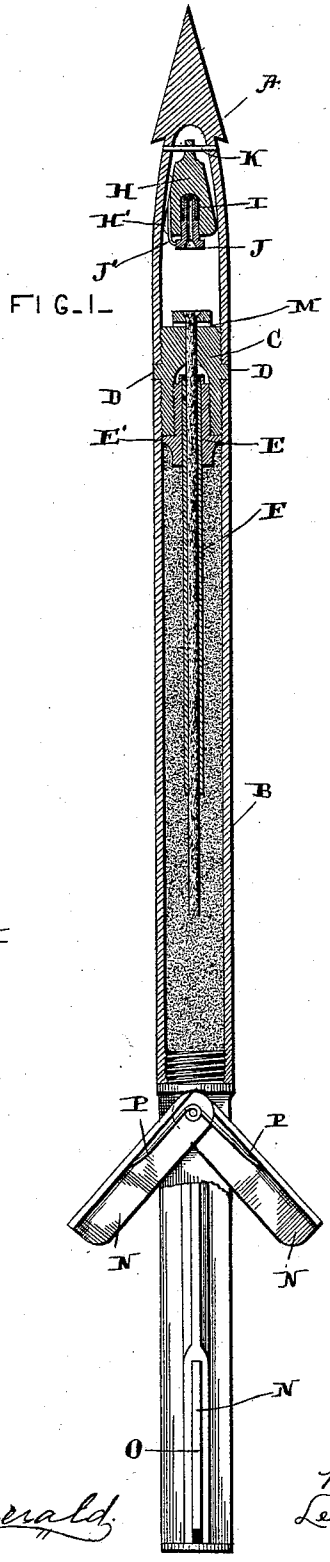


FIG. 2.

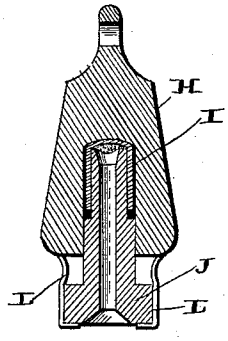
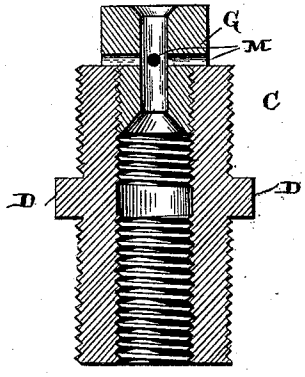


FIG. 3.



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BOMB-LANCE.

SPECIFICATION forming part of Letters Patent No. 472,889, dated April 12, 1892.

Application filed December 4, 1891. Serial No. 414,023. (No model.)

To all whom it may concern:

Be it known that I, DANIEL KELLEHER, of New Bedford, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Bomb-Lances; and I 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 it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in bomb-lances; and it consists in certain novel features of construction, which will be fully described hereinafter, and more particularly referred to in the annexed claims.

The object of my invention is to construct an improved lance for killing whales, in which the charge of powder or other explosive is ignited by means of a fuse fired by a percussion-cap contained in a vertically-moving hammer.

My invention relates more particularly to the construction of the hammer and the manner in which the cap is secured therein; also, the peculiar construction of the plug or anvil which connects the forward or point portion of the lance with the rear or magazine portion.

In the accompanying drawings, Figure 1 is a vertical sectional view of my improved lance. Fig. 2 is a sectional view of a modification of the hammer. Fig. 3 is a vertical sectional view of a modification of the connecting-plug and anvil.

A represents the forward end of the lance, which is recessed and which is pointed, as shown.

B indicates the rear or magazine portion, and C the connecting-plug between the two members, which is provided with a projecting shoulder D, against which the adjacent ends of the sections abut. This shoulder on the connecting-plug effectually prevents the escape of any flame which might pass downward from the upper end of the lance past the connecting-plug and prematurely ignite the explosive contained in the lower portion of the lance. The portion C is formed with an opening extending its entire length, which is constructed with screw-threads extending inward from its lower end. Adapted to fit the lower screw-threaded portion is the hollow plug E, in which is secured at its upper end the fuse-tube F. The opening in the said tube at its upper end is flared outward or enlarged for the purpose of admitting paper or other material, which is wrapped around the fuse before it is inserted therein for the purpose of wedging the fuse tightly in place and insure the filling of any space which might not be filled by the fuse and which, if not closed, would afford a passage for the spark or flame to the explosive and cause a premature ignition of the same.

By the above-described construction the fuse is wedged tightly in the tube and the fire A can only reach the explosive by burning the length of the fuse. The plug E is also constructed with a shoulder E′, which bears against the lower end of the connecting-plug C and effectually closes the lower screw-threaded opening in the said plug, so that the said opening is practically sealed against the passage of fire to the explosive.

Formed integral with and extending upward from the upper end of the plug C is the anvil G, through which the vertical fuse-opening extends. The upper end of this passage on the surface of the anvil is reamed or enlarged, so as to expose the upper end of the fuse, and thus secure a larger igniting-surface.

A modification of the plug C and anvil G is shown in Fig. 3, in which the former is constructed with a screw-threaded opening in its upper end, into which is run the lower screw threaded end of the anvil G. The advantage derived from having the anvil thus removable is that the said portion may be removed from time to time during a long voyage and the upper end of the fuse thus exposed freshened by trimming, and thus made more ignitible.

H represents the vertically-moving hammer, which is recessed upward from its lower end, as shown in Fig. 1. The said recess is provided with fine screw-threads part of its length. The percussion-cap I is placed in the extreme inner end of the recess and is held in place by cap-tube J, which is also provided on its exterior with fine screw-threads, which hold it in position in the hammer and against the cap. The hammer H is provided with a vertical slot H′, and secured to the lower end

of the cap-tube is a spring-wire J′, which extends upward into the said slot and prevents the cap-tube from turning in its seat in the hammer.

The hammer H is held in position in the point end of the lance by transverse wooden pin K, which supports the hammer until the lance is discharged from the gun, when the resistance of the hammer to the forward movement of the lance will break the pin, and thus allow the hammer to move rearward, bringing the cap-tube in contact with the anvil G with force sufficient to crush the fine threads on the said tube and force it against the cap, exploding the same. The spark from this explosion will drop through the cap-tube and ignite the upper end of the fuse, which is coated with wax or other suitable material.

A modification of the hammer is shown in Fig. 2, in which the cap-tube J moves freely in the opening in the hammer, the screw-threads shown in Fig. 1 being dispensed with for holding the cap-tube in position. In this construction I employ depending spring-arms L, which are turned inward at their lower ends, so as to engage the bottom surface of the said tube, and thus prevent it from dropping from the hammer.

The great advantage in having the cap-tube secured to the hammer is that after the hammer has been released and the cap-tube and anvil brought in contact the hammer drops away, leaving the opening in the anvil free and unobstructed, thus allowing the fire from the fuse to burn freely outward and not be impeded, as would be the case were the cap-tube secured directly over the fuse-opening.

The extended end of the anvil portion J is provided with transverse openings M, which constitute an exit for the air contained in the cap-tube which is forced downward by the explosion of the cap. The force is thus disposed which would otherwise be brought to bear upon the fuse-tube, causing considerable strain thereon. A tail portion is here shown for the rear end of the lance, which is provided with spring-actuated wings N, and which are pivoted at their upper ends in slots O, formed in the tail portion.

The outer edges of the wings are turned over, as shown, to form stops against which the free ends of the doubled spring P bear. Two sets of these wings are employed, arranged at right angles to each other, and they serve to guide the lance in a straight course.

I claim—

1. In a bomb-lance, an outer casing constructed with a magazine, a fuse extending therein, and an anvil at the outer end of the fuse, combined with a vertically-moving hammer, and a cap and a cap-tube carried by said hammer, substantially as shown and described.

2. In a bomb-lance, an outer casing constructed with a magazine, a fuse extending therein, and an anvil at the outer end of the fuse, combined with a vertically-moving hammer constructed with a screw-threaded recess and a cap and a screw-threaded cap-tube adapted to fit therein, substantially as shown and described.

3. In a bomb-lance, the combination, with the recessed hammer constructed with a vertical slot, of the cap-tube and a wire extending upward from said cap-tube into said recess, whereby the said tube is prevented from turning, substantially as shown and described.

4. In a bomb-lance, the combination, with the hollow casing-sections, a hollow connecting-plug, and a fuse secured in the lower end of the plug, of a removable hollow anvil secured in the upper end of said plug, a vertically-moving hammer, and a cap and a cap-tube carried by said hammer, substantially as shown and described.

5. In a bomb-lance, the combination, with the hollow casing-sections, a hollow connecting-plug having a projection at its upper end which forms an anvil, and a fuse-tube secured in said plug, of a vertically-moving hammer, and a cap and a cap-tube which are carried by said hammer, substantially as shown and described.

6. In a bomb-lance, the hollow casing-sections and a hollow connecting-plug, combined with a fuse-tube holder secured in the lower end of the said plug, a shoulder formed on the said holder, a fuse, an anvil, a cap, and a vertically-moving hammer, substantially as shown and described.

7. The combination, with the hollow casing-section, a hollow plug connecting them, and a fuse secured in the lower end of the plug, of a removable hollow anvil secured to and projecting from the upper end of the said plug and which is provided with transverse openings in its projecting portion, a vertically-moving hammer, and a cap and a cap-tube which are carried by the hammer, substantially as shown and described.

8. In a bomb-lance, in combination, the hollow casing-sections, a hollow connection therefor, a removable screw-threaded portion secured in the lower end of the said connection, a fuse-tube having a flaring upper end secured in said portion, a fuse, a removable anvil in the upper end of the said connection, having a vertical and transverse opening, a vertically-moving hammer, and a cap and a movable cap-tube secured in said hammer, substantially as shown and described.

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

DANIEL KELLEHER.

Witnesses:
H. W. HERVEY,
MARY F. HAMBLIN.