

No. 763,147.

PATENTED JUNE 21, 1904.

F. E. BROWN.  
BOMB LANCE.

APPLICATION FILED AUG. 25, 1903.

NO MODEL.

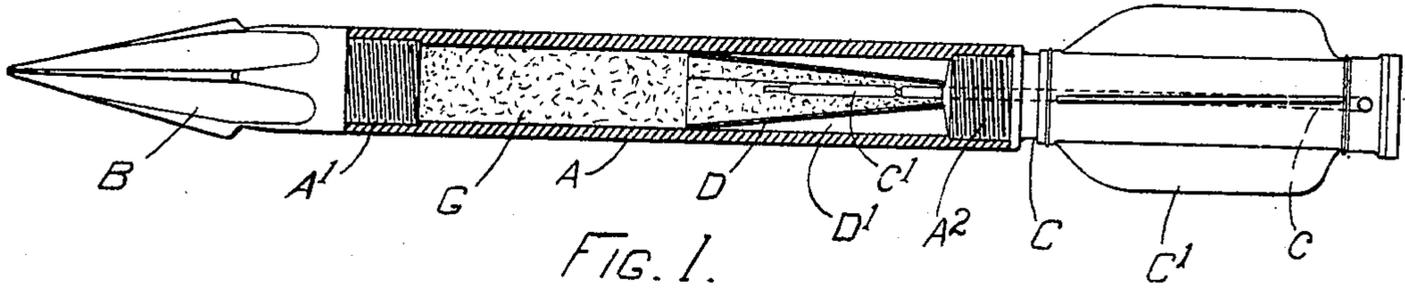


FIG. 1.

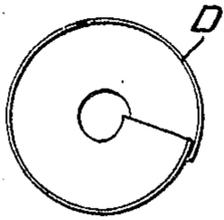


FIG. 2.

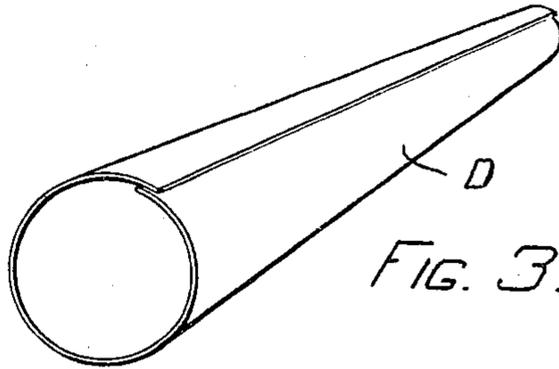


FIG. 3.

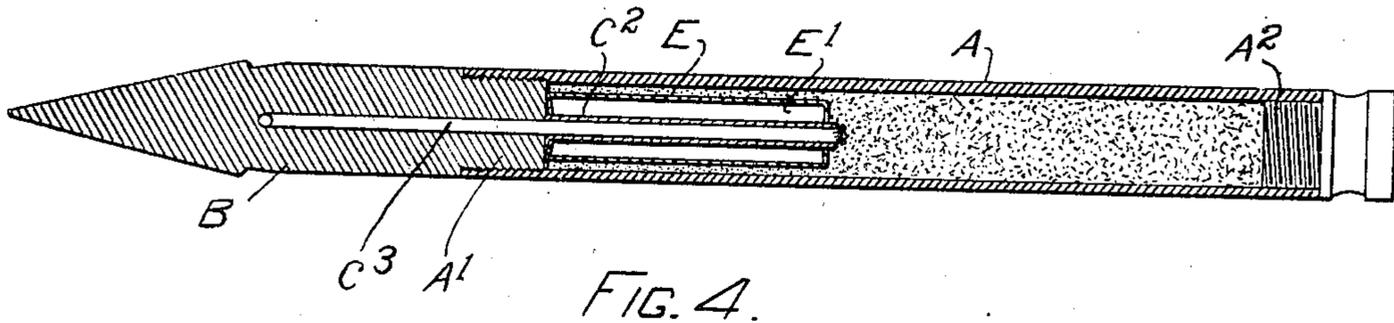


FIG. 4.

WITNESSES

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*att'y*

# UNITED STATES PATENT OFFICE.

FRANK E. BROWN, OF NEW BEDFORD, MASSACHUSETTS.

## BOMB-LANCE.

SPECIFICATION forming part of Letters Patent No. 763,147, dated June 21, 1904.

Application filed August 25, 1903. Serial No. 170,710. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK E. BROWN, of New Bedford, in the county of Bristol and State of Massachusetts, have invented certain  
5 new and useful Improvements in Bomb-Lances, of which the following is a specification.

The invention relates to bomb-lances such as used in hunting whales and to similar projectiles in which an explosive is contained in  
10 a tube or casing which bursts upon the ignition of the explosive.

It has been customary in loading bomb-lances to fill the tube forming the casing with  
15 powder, and when the powder of a lance thus loaded is ignited sufficient pressure is generated to burst the casing before all the powder is burned, with a resulting waste of powder and reduction in the effectiveness of the explosion.  
20

It is the object of this invention to prevent the waste of powder and to increase the effectiveness of the lance. This I accomplish by providing the casing which contains the explosive with a partition which extends inward  
25 from one end and forms a free space which is separated from the part of the casing containing the powder by the partition. This partition is so constructed, either by reason of the material from which it is made or by  
30 reason of its shape, or both, that it will give way or yield under the pressure generated by the burning of the powder, thus enlarging the space within the casing for the generated  
35 gases and delaying the bursting of the casing until substantially all the powder has been burned and a corresponding greater volume of confined gases generated. The partition is arranged concentric with the tube forming  
40 the casing, so that the weight of the charge will be equally distributed about the axis of the tube.

The features of the invention will be specified in the claims and will be best understood  
45 from a detailed description of the lances shown in the accompanying drawings, which embody the invention.

In the drawings, Figure 1 is a longitudinal view, partly in section, showing a bomb-lance  
50 embodying my invention in the preferred

form. Figs. 2 and 3 are detail views of the tube forming the partition in the casing, and Fig. 4 is a longitudinal sectional view of a modified form.

In the lance shown in Fig. 1 the casing for  
55 containing the powder consists of a tube A, the ends of which are closed by screw-plugs A' and A<sup>2</sup>. The plug A' at the front end of the tube A is formed on a pointed end piece B of usual construction, and the plug A<sup>2</sup> at  
60 the rear end of the tube is formed on the part C, to which the rubber feathers C' are secured. The part C is bored at c for the fuse and igniting device and is provided with  
65 a fuse-tube c', which forms a continuation of the bore c and extends into the tube A. A conical tube D is located in the rear end of the tube A, the small end of the tube fitting  
70 about the base of the fuse-tube c' and the large end fitting the bore of the tube A. The tube D thus forms a partition extending  
inward from the end of the tube A and separating the space D' from that part of the tube  
75 A which contains the powder. The tube D is centered by the fuse-tube and engagement with the tube A, so that the charge G is  
equally distributed about the axis of the tube, and the tube D engages the end of the casing  
80 formed by the plug A<sup>2</sup>, and thus the charge is prevented from shifting when the lance is fired. I prefer to make the tube D in the  
manner shown by bending a blank of sheet  
85 metal into conical form with the edges overlapped and unsecured. In forming the tube D, I prefer to make the large end somewhat larger than the bore of the casing A in which  
it is to be used. This end is contracted in inserting the tube and is held in close engagement  
90 with the casing by the resiliency of the sheet metal. This structure of partition may be cheaply made and conveniently assembled  
with the other parts of the lance and when in place forms an effective partition separating  
95 the charge from the free space, which readily yields or gives way by opening outward against the wall of the casing when the powder is ignited and pressure generated in the casing A. The opening up of the tube D under  
100 pressure allows the gases to expand, and thus gives time for burning of the full charge

before the pressure generated bursts the casing A. The tube D is preferably arranged in the rear end of the casing A, since with this arrangement the weight is maintained near the front end, resulting in a more accurate flight of the lance than would occur were the free space at the front end of the lance. This arrangement is of importance in lances which are to be fired at long range; but in lances which are to be fired at close range the partition may be arranged at the front end without serious disadvantage.

In Fig. 4 a modified form of partition is shown arranged in the front end of a lance intended for use at short range. In this lance the free space in the casing is formed by a cylindrical tube E, surrounding the fuse-tube  $c^2$ . The fuse-tube extends inward from the plug A' and forms a continuation of a hole  $c^3$ , bored in the head-piece B for the fuse and igniting device. The closed inner end of the tube E is provided with an opening through which the fuse-tube extends, so that the tube E is centered in the casing by the fuse-tube and engagement with the end A' of the casing A, which may be slightly conical, as shown. In this form of lance the partition gives way by collapsing into the space E' when the charge is ignited.

Other forms of partitions may be used, if desired; but the tubes shown are simple and efficient forms of partitions which may be readily assembled with the other parts of the lance and which are well adapted for use in connection with the lances already in use.

The usual form of fuse is used which leads from the powder in the casing A to the igniting device, (not shown,) which may be of any form such as commonly used heretofore in bomb-lances.

While I have shown and described my invention applied to bomb-lances, it will be understood that the invention may be embodied in other forms of projectiles, if found desirable.

What I claim, and desire to secure by Letters Patent, is—

1. The combination with a casing for con-

taining an explosive, of a partition extending inward from one end of the casing to form a free space within the casing and constructed to give way upon the ignition of the explosive thereby delaying the bursting of the casing, substantially as described. 50

2. The combination with a casing for containing an explosive, of a tube extending inward from one end of the casing and separating the charge from a free space within the casing said tube being constructed to give way upon the ignition of the charge, substantially as described. 55

3. The combination with a casing for containing an explosive of a conical tube of weaker material than the casing extending inward from the end of the casing and having its inner end fitting the bore of the casing, substantially as described. 60 65

4. The combination with a casing for containing an explosive, of a fuse-tube extending into said casing, a tube of weaker material than the casing extending inward from the end of said casing and centered by said fuse-tube and engagement with said casing, substantially as described. 70

5. The combination with a casing for containing an explosive, of a fuse-tube extending into said casing, a conical tube of weaker material than the casing having its inner end fitting the bore of the casing and its smaller end engaging the end of the casing about the fuse-tube, substantially as described. 75

6. The combination with a casing for containing an explosive, of a tube of sheet metal bent into conical form with its edges overlapping, the small end of the tube engaging the end of the casing and the large end fitting the bore of the casing, substantially as described. 80 85

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

FRANK E. BROWN.

Witnesses:

IRA L. FISH,  
KATHARINE A. DUGAN.