(No Model.) 2 Sheets—Sheet 1.

E. PIERCE.

GUN FOR BOMB LANCES.

No. 306,098. Patented Oct. 7, 1884.

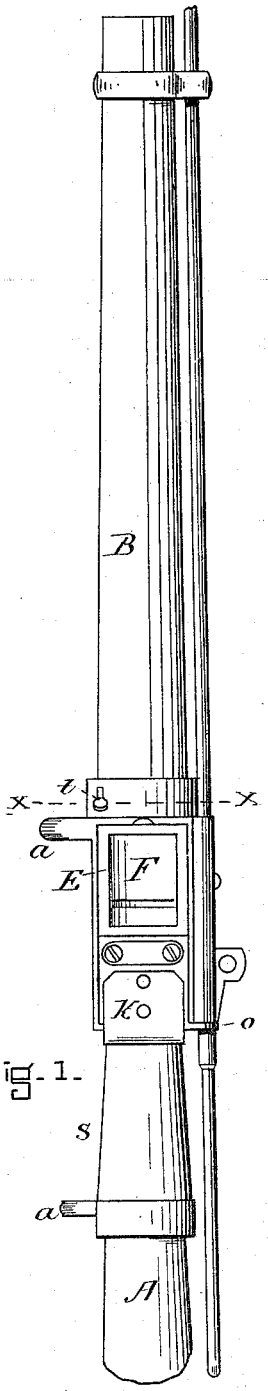

Fig. 1.

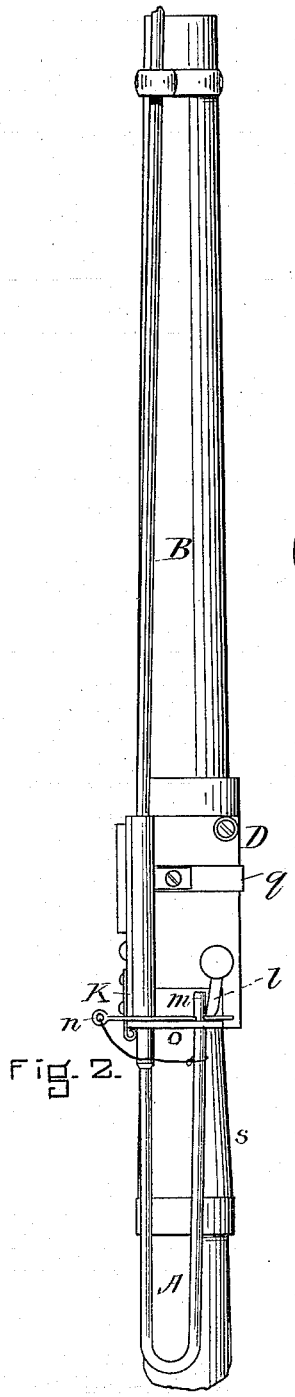

Fig. 2.

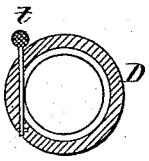

Fig. 4.

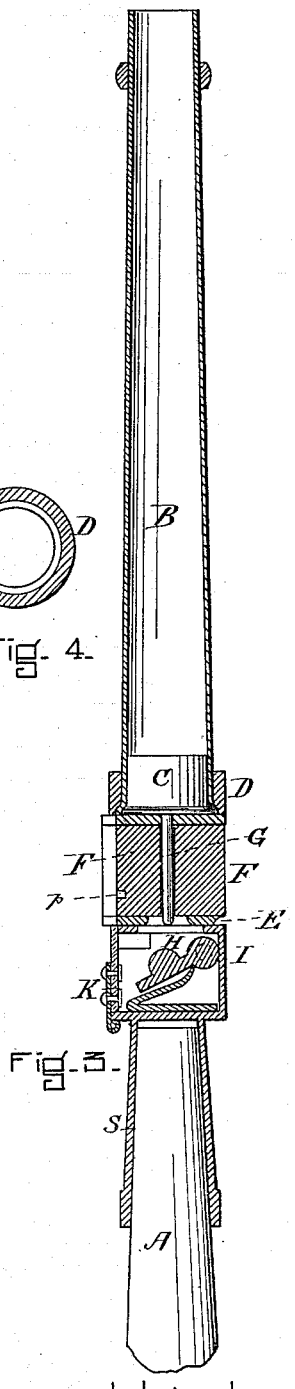

Fig. 5.

WITNESSES.

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INVENTOR.

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by his attys
Clarke & Raymond.

(No Model.) 2 Sheets—Sheet 2.

E. PIERCE.

GUN FOR BOMB LANCES.

No. 306,098. Patented Oct. 7, 1884.

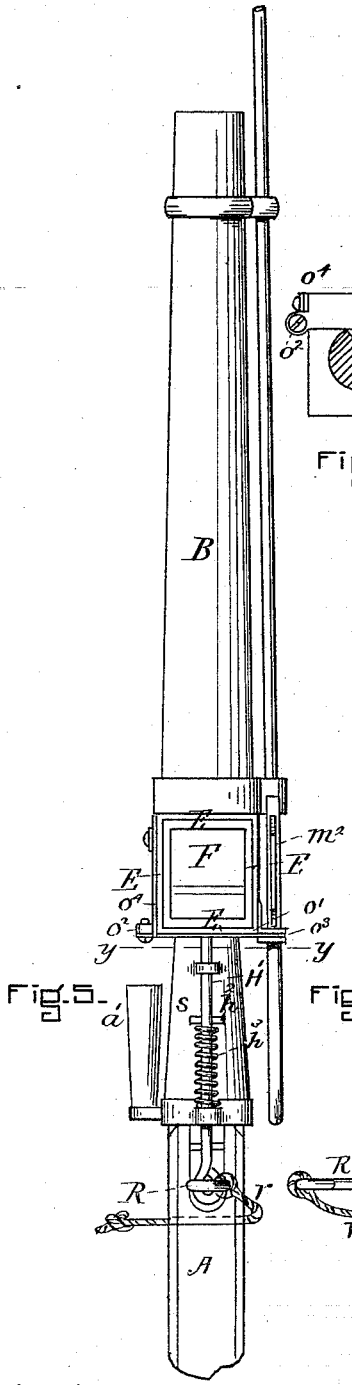

Fig. 5.

Fig. 8.

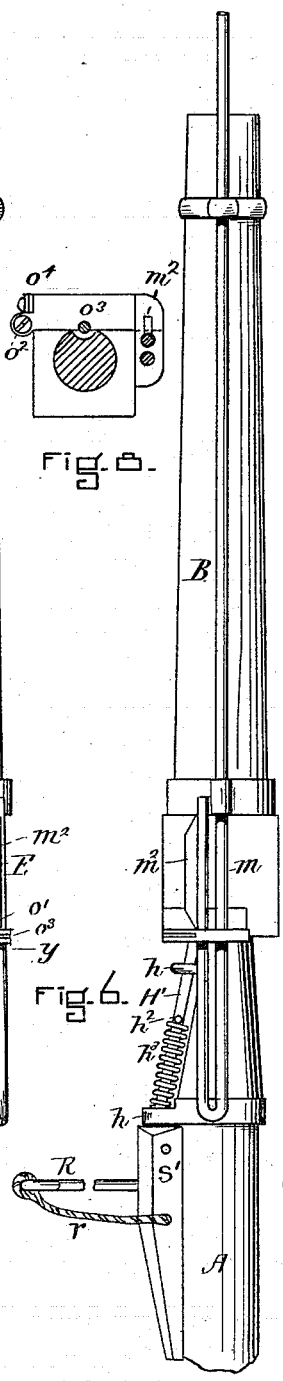

Fig. 6.

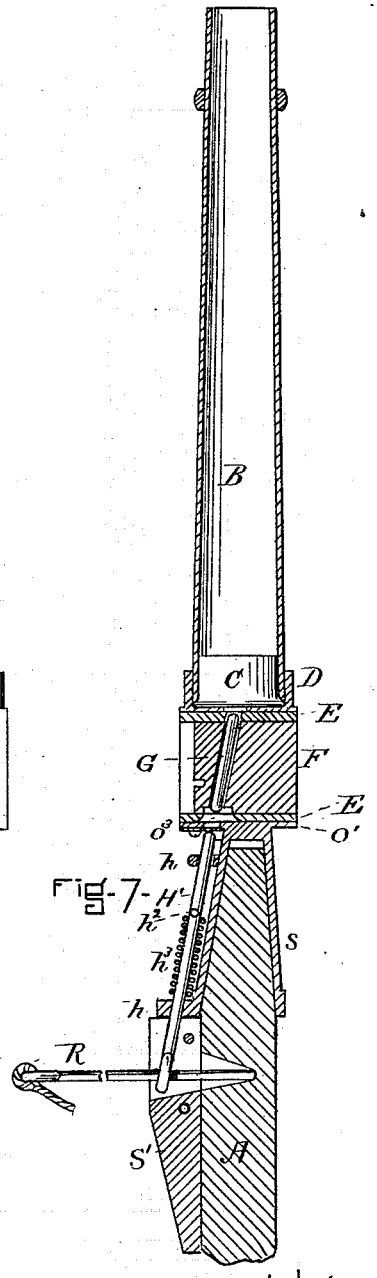

Fig. 7.

WITNESSES.

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UNITED STATES PATENT OFFICE.

EBENEZER PIERCE, OF NEW BEDFORD, MASSACHUSETTS.

GUN FOR BOMB-LANCES.

SPECIFICATION forming part of Letters Patent No. 306,098, dated October 7, 1884.

Application filed May 26, 1884. (No model.)

To all whom it may concern:

Be it known that I, EBENEZER PIERCE, of New Bedford, in the county of Bristol, in the State of Massachusetts, a citizen of the United States, have invented a new and useful Improvement in Guns for Bomb-Lances, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

This invention relates to that sort of combined harpoon and gun which is used in whaling to fasten to the whale, and at the moment of fastening discharge the gun by impact against the body of the whale, and which gun projects an explosive projectile into the body of the whale for its destruction. Several such instruments have already been patented to me, and this is designed as an improvement upon those heretofore made. It is a breech-loading gun, which is adapted to be loaded with the projectile or exploding lance, and adapted not to have the projecting charge put into it until about the time of use, which is a matter of some importance and convenience in the use of such a gun.

The improved breech-block and loading appliances which constitute the main feature of this invention may be used in company with the lock heretofore used by me in previous bomb-lance guns, or in company with a new form of lock specially devised for this form of breech-block, which I somewhat prefer.

In the drawings, Figure 1 is an elevation from the top of the gun. Fig. 2 is a side elevation on the firing-rod side. Fig. 3 is a longitudinal section on a plane parallel to the plane of projection in Fig. 2 and transverse to the plane of projection in Fig. 1. Fig. 4 is a transverse section at the line *x x* of Fig. 1. Fig. 5 is an elevation from the top of the gun, showing not only the construction contained in the preceding figures, but also a new form of lock. Fig. 6 is a side elevation on the firing-rod side illustrated in Fig. 5. Fig. 7 is a longitudinal section on the plane of projection of Fig. 6 and transverse to the plane of projection of Fig. 5. Fig. 8 is a transverse section on the line *y y* of Fig. 5.

Like letters indicate like parts in all the figures.

A is the shaft by which the instrument is thrown.

S is a socket firmly attached to the gun, and by which it is fitted upon the shaft A.

a a, Fig. 1, are two lugs on the side of the breech of the gun, in which the detachable harpoon is placed, as described in a former patent.

B is the barrel of the gun, which is fitted firmly into the ring on the breech-piece D. At the rear of the barrel is a chamfer, into which the flanged head of a cartridge-shell fits, and the breech-piece D is slotted on one side, so that the cartridge-extractor *t* may be placed to engage with the flange of the cartridge, as shown in Fig. 4.

C is a cartridge-shell, which is represented as a central-fire flanged-head cartridge.

It is intended to load the barrel of this gun with the projectile or lance from the muzzle, the projectile being a long tubular percussion-shell, such as is used in other guns invented by me. The charge of powder for the projection of the shell is placed in the cartridge-shell C, with a wad over it, and this cartridge-shell need not be inserted into the gun until just before firing it, while a projectile may be kept in the barrel substantially all the time. A parallel-sided breech-block of substantially rectangular section slides up and down at the rear of the barrel, closing it behind the cartridge. This breech-block is marked E in the drawings, and is made as a metallic frame, usually of four sides, one metal surface being placed at the rear of the barrel, one opposite to it next the lock, and one on each side between the two. The cavity surrounded by these four metallic sides is to be filled with wood or other light material, F, and through the center of the cavity projects the firing-pin G, to be forced in contact with the priming of the cartridge when the hammer H is let fall.

I have spoken of the frame E as four-sided; but it is obvious that this form may be modified somewhat without changing the essential character of the instrument. Any composite breech-block of wood and metal will involve the principle of operation of the one already described; or a wooden block riveted across the grain, or otherwise clamped to prevent splitting, may be used.

The lock represented in Sheet 1 of these drawings is inclosed in the lock-case I, situated at the rear end of the hollow breech-piece, and it has a flexible cover, *k*. This lock is substantially like the lock of other guns heretofore patented by me, and it is cocked by the aid of a cocking-pin, *l*, which engages with one end, *m*, of the firing-rod, substantially as the locks of other guns formerly patented by me.

To prevent the accidental discharge of this gun when it is fully loaded, the short end *m* of the firing-rod may have a hole in such a place that when the gun is cocked this hole shall come above the ledge *o* on the outside of the breech-piece of the gun, and a safety-pin, N, which is carried attached by a string to some part of the gun, may be inserted through this hole in the firing-rod when the gun is cocked, as shown in Fig. 2, to prevent the accidental discharge of the gun by striking the end of the firing-rod. When the gun is picked up for use, this safety-pin N is removed, and the gun will then be discharged by striking the firing-rod against the body of the whale.

The lock-case is provided with a flexible cover, *k*, so that it can be opened and examined, if desired; but I describe this construction in this place not for the purpose of claiming it in this application, but to describe the best mode I have discovered of applying the principle of the machine when it is employed in company with an old form of lock.

The movable breech-block is molded and recessed on top, as shown in Fig. 3, so that the flange of the cartridge may rest in the recess *p*, and the barrel of the cartridge upon the top of the movable breech-block forward of the recess *p*, so as to center it properly as it is to be shoved into the barrel.

On the exterior of the breech-piece, abreast of the movable block E F, is a spring, *g*, that snaps under the movable breech-block when it is in position to be fired. There is sufficient room behind the recess *p* in the movable breech-block for the thumb or finger of the harpooner to be placed, in order to press forward the cartridge-shell C into the barrel of the gun.

Turning now to Sheet 2 of the drawings, it will be observed that the gun represented in Figs. 5, 6, and 7, although it has the same barrel, breech-piece, and method of loading as the gun represented in Figs. 1, 2, and 3, has quite a different lock, and is thereby still further shortened and lightened. The socket S is not, in this instance, a plain conical socket, but is made somewhat beveled upon the upper side, as shown in section in Fig. 7. The firing-pin G of the breech-piece, instead of being horizontal, as in case of the lock represented in Fig. 3, is inclined, as represented in Fig. 7. The hammer in this lock is marked H′, and is an eyebolt mounted in lugs *h* on the top of the socket S, and is provided with a transverse pin, h^2, to serve as an abutment for the spring. This spring h^3 is a helical spring, one end of which abuts against the transverse pin h^2 and the other against the rear lug, *h*. This hammer H′, when withdrawn as far as it can be, comes entirely outside of the rear of the housing O′ for the breech-block, and to this housing O′ there is pivoted at O^2 a latch, O^3, adapted to shut down between the hammer H′ and the housing O′ at the rear of the breech-block. This latch O^3 is preferably forced downward by the leaf-spring O^4. (See Figs. 5 and 8.) It extends clear across the rear of the breech-block and is tripped by the cam m^2 on the top of the firing-rod *m*.

In order to cock the gun shown in Figs. 5, 6, and 7, a pin, R, is inserted through the eye of the hammer H′ and down into a conical socket in the shaft A, and this pin R is pulled back, carrying with it the hammer H′ until the latch O^3 drops in front of the end of the hammer H′. An offset, S′, is built up upon the top of the shaft A, in order somewhat to protect the mechanism of the lock. A lanyard, *r*, is attached to the top of the pin R, and passes through a hole in the shaft, which it fits pretty tightly.

On cocking this gun and leaving the pin R through the eye of the hammer H′, the gun-lock can be secured by drawing down the lanyard *r* through the hole in the shaft, and if the firing-rod *m* is accidentally pushed, and the latch O^3 sprung by the firing-rod cam m^2, the friction of the lanyard will be sufficient to hold the hammer H′ as it goes forward, so that it will not strike a discharging-blow upon the cartridge C.

In the gun with this new form of lock I prefer, instead of having the double lugs *a a*, (shown in Fig. 1,) to have a harpoon-socket, S, for the shaft. This form of lock is entirely exposed, so that it can always be seen whether it is in order, and if the principal parts, such as hammer H′ and the spiral spring h^3, are properly japanned, there need be no difficulty about keeping the same in order. By this construction I am enabled to make a gun of a given caliber and power some ounces lighter than any gun for the purpose which I have heretofore known, and the question of weight is one of great importance, as will readily be understood on reflecting that this instrument is placed upon the end of a pole about six feet long, and is intended to be thrown from the hand at the body of a whale in the water. Of course any such instrument must be point-heavy, and therefore have a very steep trajectory if thrown to a long distance, and every ounce of weight at the point that is removed from this point-heavy darting-instrument has a material influence in flattening the trajectory of its flight, and so enabling it to be cast farther and surer than it otherwise could be. This diminution in the weight is due in part to the fact that the breech-block is of the peculiar construction described—namely, of wood or with a metallic-framed casing having a filling of wood or other light material—and in

part to the new lock, either of which may be used without the other.

I therefore claim as my invention, and desire to secure by Letters Patent of the United States—

1. In combination with the metallic frame E and firing-pin G of the breech-block of a bomb-lance gun, the wooden filling F in said breech-block, whereby the absolute and specific gravity of the firing apparatus of a bomb-lance gun is reduced at or near its head, substantially as described.

2. The combination, with the shaft A and firing apparatus of a bomb-lance gun, of the cocking-pin R and lanyard r, whereby the friction of the lanyard in the stock may be opposed to the tension of the lock-spring, and the gun uncocked without exploding a contained cartridge, substantially as described.

3. The combination of the hammer-pin H′ with the lugs h, the spring h^3, the latch O^3, and cam m^2, substantially as described.

EBEN. PIERCE.

In presence of—

F. F. RAYMOND, 2d,

FRED. B. DOLAN.