THO.s W. ROYS'

Shoulder Gun.

31190 Patented Jany. 22. 1861.

Fig. 1

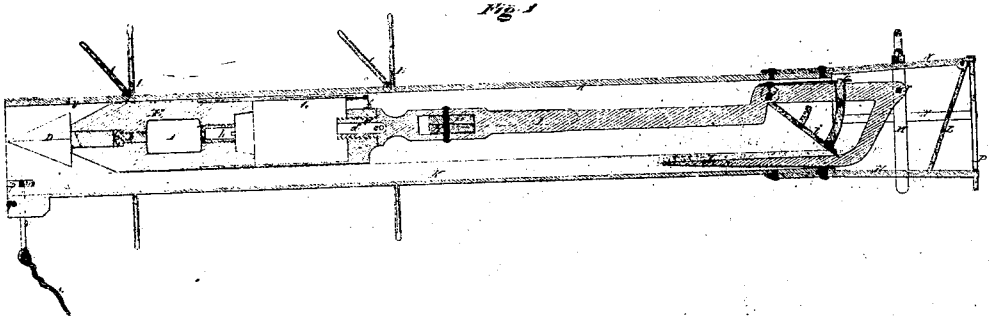


Fig. 2

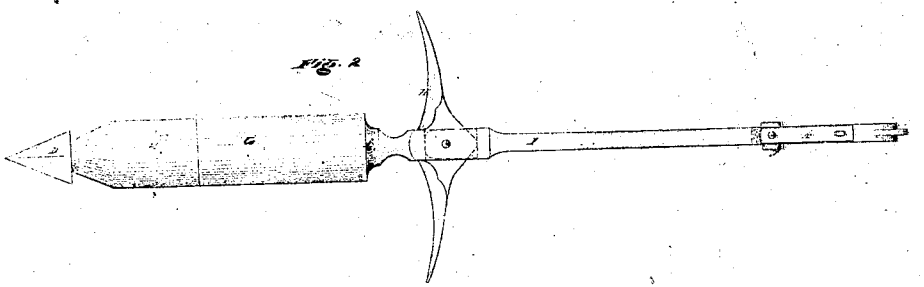


Fig. 3

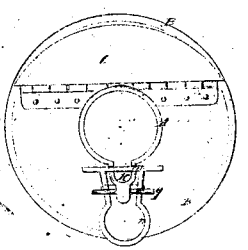


Fig. 4

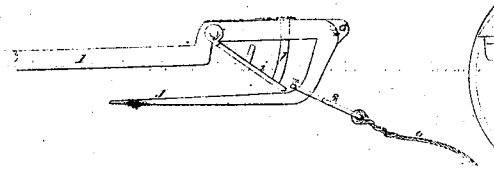


Fig. 5

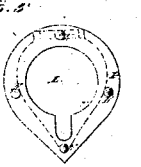


Fig. 6.

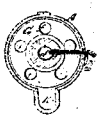


Fig. 7.



Witnesses
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UNITED STATES PATENT OFFICE.

THOMAS W. ROYS, OF SOUTHAMPTON, NEW YORK.

IMPROVEMENT IN HARPOON-GUNS.

Specification forming part of Letters Patent No. **31,190**, dated January 22, 1861.

To all whom it may concern:

Be it known that I, THOMAS W. ROYS, of Southampton, Long Island, in the State of New York, have invented a new and useful Gun, which I denominate a "Shoulder-Gun," to be discharged while resting on and not against the shoulder. The chief use to which I propose to put this gun is to shoot bomb-harpoons for the purpose of killing whales; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is a longitudinal section through my said gun. Fig. 2 is a view of a harpoon-bomb. Fig. 3 is a side elevation of the end of the shaft of the said bomb. Fig. 4 is a front-end view. Fig. 5 is a back-end view. Fig. 6 is a transverse section through the said gun and rocket-case, showing the connection between the rocket which propels the bomb and the barrel which contains it, and also the connection between the lock and the detonating substance leading from it to the rocket.

To enable others skilled it the arts to which my invention appertains to make and use the same, I will proceed to describe the construction and operation thereof.

Similar letters of reference represent corresponding parts of the different figures of the drawings annexed.

Fire-arms are divided into two great classes—viz., small-arms and ordnance—the first of which comprises such pieces as are aimed and fired without the aid of a rest or carriage, and the second such pieces as are aimed and fired with the aid of a rest or carriage. The first are used for throwing small projectiles, and have hitherto been made to consist of three essential parts—viz., the stock, the lock, and the barrel. The second are used to throw large rockets, shells, or shot, and are made to consist of simply the barrel mounted on a carriage or rest, with sometimes a hammer fixed on the carriage or barrel.

Both of these kinds of arms are used in the naval or marine service, and also in the army or land service. Now, in the use of these two classes of arms on shipboard much greater accuracy can be obtained in shooting with the former than there can be with the latter, because in the use of the first the gunner has the gun completely under his control, which enables him to keep his sight bearing on the object to be struck, notwithstanding the motion of the vessel. In the use of the second class the same accuracy cannot be attained, because the gunner has not such perfect control of the gun, as in this case, after the sight has been taken, if the vessel moves the sight is lost and the shot is without effect.

For this reason this last class of arms loses much of its efficiency at sea. It is nevertheless necessary to employ arms of this class whenever it is desirable to throw large rockets or shells, as in that case the other class of arms has not sufficient caliber. The firing of large rockets or shells, therefore, at sea has hitherto been attended with a great deal of uncertainty in point of effect.

To unite in a single gun the means of complete control and the capacity for throwing large rockets weighing as high as eighteen or twenty pounds with accuracy, notwithstanding the motion of the vessel, and without injury to the gunner or any one standing near him, is the chief object of my invention.

To this end I make my gun without stock or carriage, making the barrel of such shape and proportion as to balance on the shoulder of the gunner, and so arrange and combine a lock therewith as to be within his convenient reach while so balanced on his shoulder, from whence it is to be fired. By this means the gunner is enabled to shoot a much larger and heavier gun with perfect accuracy than he could if the gun were made with a stock to shoot from against his shoulder and supported by his arms, as is now the practice.

The drawings represent a rocket harpoon-gun for killing whales, for which my gun is more especially intended; but it may, of course, be used for other purposes.

The barrel of my gun is represented in the drawings by A. It consists of sheet-copper or other metal. It is cylindrical in form, with the exception of the channel K, made on the under side thereof, for the purpose hereinafter explained.

The said barrel is encircled with two wide transverse flanges, B B. Through the upper part of these flanges a hole, A, is cut, in front of which valves or gates C C are arranged on hinges, so as to lie down upon the barrel or

shut up against the flanges, and thus open or close the hole in the top part of the flanges. The object of these flanges is to protect the face and person of the gunner from the back fire of the rocket. This function these flanges would fulfill just as well without the hole *a* and valves C C as with them; but if these flanges were made blank all the way around the barrel the gunner could not take sight upon any object, as the flanges are both before his face when the gun is upon his shoulder. The holes *a* therefore are cut in the flanges that the gunner may take sight, and the valves C are placed before these holes that the efficiency of the flanges as protectors may not be impaired, the valves C saving the efficiency of the flanges by closing up against them, which closing up is effected by the issuing of the gas through the vent-hole *v* against the valve as the rocket leaves the barrel.

The valve on the back flange does not close unless the rocket bursts the barrel between the two flanges in its explosion.

The valves C may be dispensed with and pieces of glass set in the flanges for the gunner to look through to take sight; but the valves, I think, are the best, as the refractory power of the glass is apt to deceive the sight.

The point of the harpoon is shown by D, and the bomb in which it is fixed is shown by E, and the cavity in the bomb to receive the powder is shown by F. The bomb is charged from the front end through the opening now closed by the tail of the point D and the screw *b*, the point and screw being removed to introduce the powder or other substance which may compose the charge.

The rocket-case is shown by G, in the back end of which the shank or shaft of the harpoon is screwed, as shown by *c*. In the center of the screw, which enters the back end of the rocket-case, a small priming-hole, *d*, is drilled to join another hole, *e*, drilled from the surface of the shaft to meet it nearly at right angles. Opposite this small hole *e*, in the rear of the rocket-case, a hole is drilled in the gun-barrel directly over the lock, Fig. 6, and under the hammer thereof. Through this hole in the barrel a small tube is inserted in the priming-hole *e*, and in the said tube the detonating substance is put, which ignites the rocket, and which is itself ignited by the fall of the hammer on the lock, the priming being cut by the hammer in its fall. It is not thought necessary to show a lock in the drawings, as no particular lock is intended to be used. Any percussion-lock can be made to answer the purpose.

In the rear end of the rocket-case are a number of small holes, made (shown by *f*) and arranged as shown in Fig. 6. The object of these holes *f* is to allow the propelling power of the rocket to escape, so as to take effect against the atmosphere. The fuse which ignites the charge in the bomb is placed in the cavity *h*, so as to communicate with the charge in the bomb and the rocket.

The barbs of the harpoon are fixed in the stock on a point, as shown by H, so as to set in the position shown in the drawings, or to close up against the stock when entering the whale.

The stock of the harpoon is shown in the drawings by I, the rear end of which stock is made in the form of a hook, the point of which is shown by J. In this hook a check-piece, *i*, is arranged on a pivot, *j*. The said check-piece is kept down on the lower part of the hook by means of a spring, *k*, which is made to act on the upper end of a segment, *l*, the lower end of which is fixed to the check-piece *i*.

The point J of the hook is made to move and rest in the bottom of the channel K, so that when it is discharged from the barrel of the gun it catches under the bar *m* of the link *n*, to which the line *o* is spliced, the bar *m* being made to rest in the slot *p*, so that the point of the hook can pass under it as it (the hook) leaves the barrel, the harpoon moving with sufficient velocity to cause the link to pass behind the check *i* into the bight of the hook, from whence it cannot escape until removed by hand. The bar *m* of the link *n* is to be made long and straight, to keep the harpoon from being forced clear through the whale, and the said link is held in its proper position by means of a wooden pin, *q*, which is broken by the hook when the harpoon leaves the barrel.

To the rear end of the barrel are attached four rods, N, which project some distance behind the end of the said barrel. These rods are all joined in a plate, P, with a hole in the center, the plate and hole being of the form shown in Fig. 5. This figure also illustrates the manner in which the rods are attached to the said plate. The hole in this plate is made equal in diameter to the internal diameter of the barrel, and is set directly opposite the end of the barrel, so that the harpoon can be introduced in the barrel through the plate. The hole in the said plate is covered by a valve, L, fixed to the upper part of the said plate by a hinge, so that it can be raised up against the upper rod, so as to admit the harpoon, and then be shut down, so as to close the hole in the plate. The top and bottom rods have ears or lugs on each side of them, opposite each other, through which the crotch-pin M (shown in Fig. 7) is made to pass, the pin being made to straddle the top and bottom rod, and to receive a lug, *r*, on the rear end of the harpoon-shank, through which a wooden pin is passed, to keep the harpoon from falling out of the gun-barrel, which pin breaks when the rocket is discharged.

The object in attaching the rods M to the rear end of the barrel and uniting their ends in a plate and covering the hole in the plate with a valve is to prevent the fire issuing from the rocket from passing straight back and killing any one that may stand in the way,

and at the same time to provide a proper escape for the fire and gas, which escape is formed in the opening between the rear end of the barrel and the plate on the ends of the rods.

It will be seen that in this invention there are two essential elements to be accomplished:

First, to make a gun so that a rocket can be fired therefrom without injury to the gunner by the explosion or back-fire of the rocket, without obstructing his sight. This element is accomplished by encircling the barrel with flanges B B, made with valves in the manner described.

Second, to make a gun of the aforesaid description from which rockets can be fired without danger of injuring any one that may stand in the rear of the gunner. This element is accomplished by the use of the plate P and valve L on the end of the rods N, and by means of the opening between the rods, the plate, the valve, and the end of the barrel, all of which amounts to closing the end of the barrel and cutting lateral holes through the cylindrical surface near the end thereof.

These are the essential features of my invention. All the other points of novelty are of minor importance, and grow out of these three essential elements and their application to killing whales.

What I claim, therefore, as my invention, and desire to secure by Letters Patent, is—

1. Encircling the barrel of the gun with one or more transverse flanges, B, provided with valves C, for the purpose of protecting the face of the gunner, and at the same time enabling him to take his sight.

2. Placing before the rear end of the barrel a stop to receive the back-fire of the rocket, substantially as described, for the purpose specified.

3. The long bar *m* across the top of the link *n*, to prevent the harpoon from being forced clear through the whale.

4. The vent-hole *v* in the front end of the barrel, for the purpose of closing the valve C, in the manner described.

5. The channel K on the gun-barrel, through which the hook J travels, so as to catch the link *n*, in the manner described.

THOMAS W. ROYS.

Witnesses:

AMOS BROADNAX,

WILLIAM JACOBUS.