G. B. REABEN.

ARROW.

APPLICATION FILED NOV. 17, 1919.

1,328,967.

Patented Jan. 27, 1920.

Fig. 1.

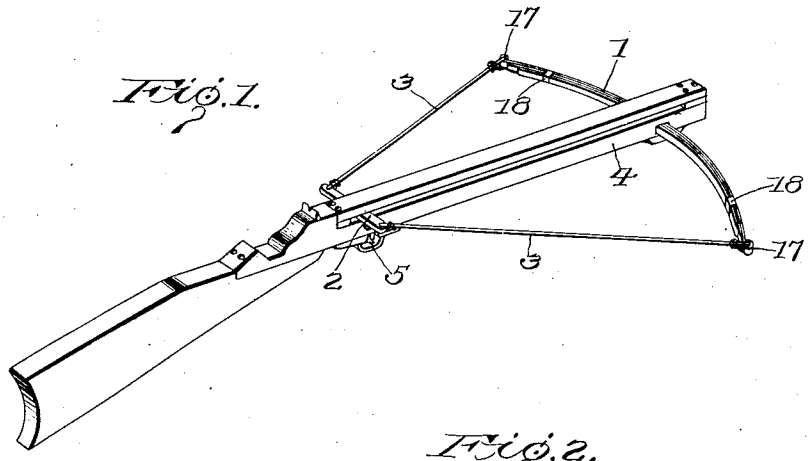


Fig. 2.

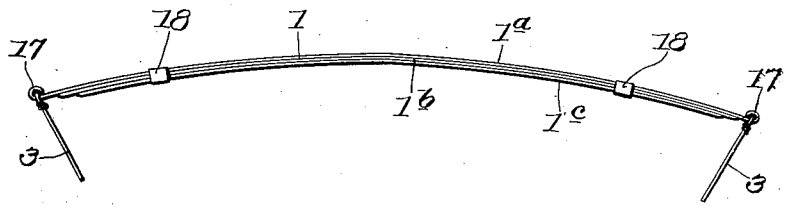


Fig. 3.

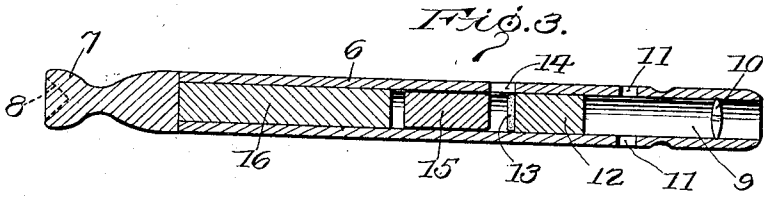


Fig. 4.

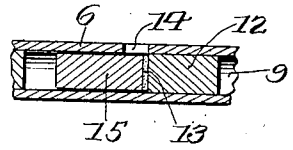
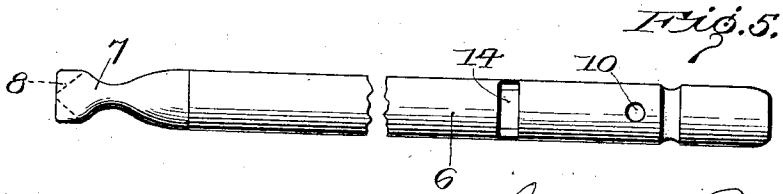


Fig. 5.



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ARROW.

1,328,967. Specification of Letters Patent. **Patented Jan. 27, 1920.**

Application filed November 17, 1919. Serial No. 338,552.

To all whom it may concern:

Be it known that I, GEORGE B. REABEN, a citizen of the United States, residing at New York, in the county of New York, State of New York, have invented certain new and useful Improvements in Arrows, of which the following is a description, reference being had to the accompanying drawing and to the figures of reference marked thereon.

The invention relates to new and useful improvements in arrows, and has for an object to produce an arrow which is provided with means for exploding a torpedo upon the arrow striking end foremost the target.

Another object of the invention is to provide an arrow with a whistle which is arranged so that, as the arrow passes through the air, it will produce a shrill sound.

These and other objects will in part be obvious and will in part be hereinafter more fully set forth.

In the drawings:—

Figure 1 is a perspective view of a cross bow gun having my improved bow applied thereto and adapted to shoot my improved torpedo arrow;

Fig. 2 is an enlarged detail showing in side elevation the bow and a portion of the springs attached thereto;

Fig. 3 is a sectional view through the torpedo arrow which is adapted to be shot from the gun;

Fig. 4 is a sectional view of a portion of the arrow showing the firing plunger having engaged the torpedo for exploding the same; and

Fig. 5 is a plan view, showing the invention as applied to a long arrow adapted to be fired by hand from a bow.

The invention is directed broadly to an arrow, and particularly to the arrow which is provided with means for exploding a torpedo upon the arrow striking end foremost the target. To this end there is a chamber provided within the arrow, in which chamber is placed a metal abutment on which the torpedo may be placed. This is accomplished through a side opening in the arrow. Within the inner chamber of the arrow is a firing metal plunger which is caused to shoot forward when the arrow strikes the target and strikes the torpedo, exploding the same. My improved arrow may, from certain aspects of the invention, also be provided with a chamber opening from the forward end of the arrow, across which chamber is placed a whistle, air escaping ports being provided for the chamber at points in the rear of the whistle so that air may enter, pass through the whistle and escape through said ports. Thus the arrow as it flies through the air will produce a shrill whistle. The bow for throwing the arrow is made with a series of flat steel springs associated so that the combined action of the springs may be utilized in throwing the arrow.

Referring more in detail to the drawing, I have shown in Fig. 1 a cross bow gun consisting of a bow 1, a cross head 2, which is connected to the bow by suitable strings 3—3. The bow is attached to the outer end of the gun which is indicated at 4 and which may be of the usual type. The cross head is adapted to be pulled back to a point where it will be held by the trigger 5, and upon releasing the trigger the cross head shoots forward, throwing the arrow from the barrel of the gun.

The arrow is shown in detail in Figs. 3 and 4, and consists of a body portion 6 having a tail 7 formed with a notch, indicated in dotted lines at 8, for the cross head or string of the bow. Said body portion may be made of wood or metal, as desired, and is formed with an inner chamber 9 which opens at the forward end of the arrow, as clearly shown in Fig. 3.

Extending across the chamber 9 and secured by suitable grooves in the inner wall of the chamber is a whistle 10 which is of the usual construction. In rear of the whistle the walls of the chamber are formed with ports 11 through which air passing into the chamber and through the whistle may escape. As the arrow flies on its course, air enters the outer end of the chamber, passes through the whistle, causing the whistle to produce a shrill sound, and then escapes through the ports 11.

This chamber 9 is divided by means of a metallic partition 12 which is secured to the arrow in any suitable way. This metallic partition serves as an anvil or metallic abutment against which a torpedo, indicated at 13 in Fig. 3 of the drawings, may be placed. The wall of the arrow is formed with an opening 14 to permit the placing of the torpedo. Disposed in the inner section of the chamber 9 in the arrow is a firing plunger 15. Said plunger fits comparatively loosely the inner wall of the chamber and yet with

sufficient friction so that it will stay set in the position in which it is placed. If the arrow is bored for a considerable distance to form the chamber 9, then an abutment 16 may be placed in the chamber for limiting the movement of the plunger 15. A torpedo is placed in the arrow through the opening 14 and against the metal anvil or abutment 12. First, however, the plunger 15 is moved to the inner end of its chamber, as shown in Fig. 3, where it will be held by friction. The arrow is fired from the gun, and when the forward end of the arrow strikes the target and the arrow is thereby quickly stopped, the metal portion 15 will shoot forward by inertia and will strike the torpedo 13 resting on the anvil 15, and explode the same. In Fig. 4 I have shown the fire plunger in its forward position.

In Fig. 5 of the drawings, I have shown an arrow which may be shot from a bow without the use of a gun. The arrow, of course, is made considerably longer and larger, but as to the details of the firing of the torpedo and the whistle the parts are similar and have been similarly numbered. The bow 1 is preferably formed of a series of steel leaf springs, the outer one indicated at 1^a having its ends turned back, as at 17, to form suitable eyes to which the cords 3—3 are secured. In the drawings I have shown two other leaf springs 1^b and 1^c. These springs are held assembled by suitable metal clips 18—18. When the bow is bent, the section 1^a will be brought into engagement with the section 1^b, and the section 1^b into engagement with the section 1^c, and all three of the sections will then be placed under tension and combined in their spring action to throw the arrow.

The invention in its broadest aspects is directed to the means carried by the arrow for exploding the torpedo, and so far as this broad invention is concerned, it is immaterial whether or not the arrow is provided with a whistle.

It is obvious that minor changes in the details of construction and the arrangement of parts may be made without departing from the spirit of the invention as set forth in the appended claim.

Having thus described my invention, what I claim as new and desire to secure by Letters-Patent is:—

An arrow having a chamber opening at the forward end, a whistle extending across said chamber, ports in the side walls of the arrow in rear of the whistle, a metal partition across the chamber in the rear of said ports, a firing plunger located within the inner chamber formed by said partition and movable when the arrow strikes end foremost against a torpedo in said chamber and on said partition for exploding the same, said arrow having an opening in its side wall adjacent the inner end of said partition to permit the placing of said torpedo.

In testimony whereof, I affix my signature.

GEORGE BIRKLEY REABEN.