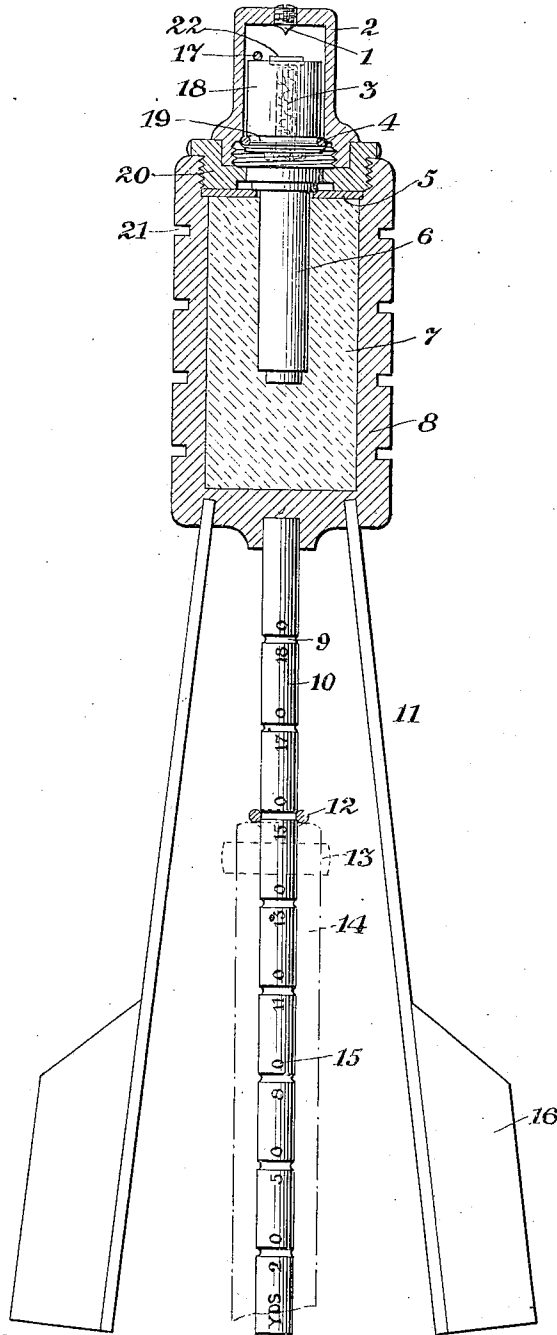


E. B. BABBITT.
GRENADE.

APPLICATION FILED JUNE 25, 1910.

981,357.

Patented Jan. 10, 1911.



Witnesses:

Frederic N. Smith
Philip T. Müller

Inventor:

Edwin Burr Babbitt

UNITED STATES PATENT OFFICE.

EDWIN BURR BABBITT, OF THE UNITED STATES ARMY.

GRENADE.

981,357.

Specification of Letters Patent.

Patented Jan. 10, 1911.

Continuation of abandoned application Serial No. 489,740, filed April 13, 1909. This application filed June 25, 1910. Serial No. 568,950.

(DEDICATED TO THE PUBLIC.)

To all whom it may concern:

Be it known that I, EDWIN BURR BABBITT, of the United States Army, a citizen of the United States, for the present residing at Sandy Hook, in the county of Monmouth and State of New Jersey, have invented certain new and useful Improvements in Grenades, of which the following is a specification.

This application is made under the act of March 3, 1883, chapter 143 (22 Stat., 625), and the invention herein described and claimed may be used by the Government of the United States, or any of its officers or employees, in the prosecution of work for the Government, or by any person in the United States, without the payment to me of any royalty thereon.

This application is a continuation of my abandoned application Serial No. 489,740, filed April 13, 1909.

It is well known that grenades or hand thrown bombs are limited in range to about 150 feet, are inaccurate in direction, and are dangerous to the user and his companions.

This invention relates to a so called rifle grenade, which can be propelled a considerable distance if necessary, can be accurately directed and is relatively safe to the user. This kind of grenade is provided with a charge of high explosive, percussion cap mounted on a plunger, a firing pin and a detonator of any well known type.

This invention relates to an improvement in the method of throwing grenades whereby the range is materially increased, whereby the desired direction is assured, and whereby the desired range is obtained. For the purpose of obtaining the aforesaid increase in range, the grenade is provided with a stem of rigid material of such diameter as to fit the bore of the rifle carried by the user of the grenade. The length of the stem is made such that the maximum desired range will be obtained. A blank charge of smokeless powder or a suitable mixture of black and smokeless powders is used with my grenade. It is evident that with the stem fully inserted in the muzzle of the rifle and the latter fired in the desired direction and proper elevation, the grenade will be propelled, by means of the aforesaid blank charge, with the same accuracy as attends

mortar or howitzer fire. It is evident that any range within the maximum may be attained by inserting the stem in the muzzle of the rifle only so far as is necessary for that range. This is practically accomplished by graduating the stem for the different ranges and providing a split collar closely embracing the stem but movable along it. By setting the collar or sleeve at the graduation for the required range and inserting the stem in the bore of the rifle, to this collar, the grenade will be propelled the required distance by means of the blank charge. The plunger which carries the percussion cap is securely locked in place by means of a pin, passing through the walls of the plunger housing and over the top of and adjacent to the plunger. This to provide safety for those carrying the grenade, when the same is not in use; this pin must be removed when the grenade is to be fired from the rifle. This grenade is also provided with two vanes or blades, which, while not necessary, are desirable for producing steadiness of flight.

The accompanying drawing is a longitudinal sectional view of the grenade, showing the plunger (which carries the percussion cap) and the detonator in side elevation.

This drawing shows a type of my invention, in which the main body of the grenade 8, being a hollow cylinder, is filled with a composition of high explosive 7, the body 8, is provided on its exterior circumference with a series of annular grooves 21, to aid in the fragmentation of the same upon impact, when the grenade is fired or thrown.

The body 8, is provided with a closing screw cap 20, which is counterbored to receive the housing 2, in which is fitted a plunger 18, which carries the percussion cap 22, a washer 5, is interposed between the cap 20, and the explosive charge 7, for closing up any space between the closing cap 20, and the charge.

The lower end of the housing 2, is provided with a female screw thread by means of which the detonator 6, is secured thereto. This construction is employed in order that the plunger carrying the percussion cap and the detonator may be carried separate from the main body of the grenade which carries the charge of high explosive, if necessary for safety's sake. In the upper end of the

housing is fitted a firing pin 1. The lower end of the plunger 18, is provided with a split ring 19, which locks the plunger temporarily to the housing, in a position away from the firing pin 1. The plunger 18, is securely locked in place to prevent forward movement by means of the pin 17, this locking means is employed simply for safety when the grenade is being carried or handled and must be removed when it is desired to fire the grenade from a rifle, or to throw the same by hand. The plunger 18, is provided with a central opening 3, filled with dry gun cotton. This serves as a means for communicating the flame from the cap 22, to the detonator 6.

To the lower end of the housing 8, is securely fitted a rod 10, of rigid material. This rod is suitably graduated to indicate the ranges at which it is desired to propel the grenade by means of the blank charge before mentioned. These range graduations are marked 9, and consist of annular grooves cut into the rod, which form seats for the split collar 12, which is employed for holding the grenade at any given position in the rifle barrel, as indicated by the ranges marked on the stem 10, of rigid material. There is also attached rigidly to the lower end of the grenade body 8, two rods 11, on each of which is fixed a vane or blade 16. The object of these vanes or blades is to steady the flight of the grenade after it has been fired. As shown on the drawing, these guiding vanes are arranged one on each side of the graduated stem and project downwardly along the outside of the rifle barrel.

The operation of this device is as follows, viz: Insert the graduated stem of the grenade in the muzzle of the rifle, for a desired range, as indicated by the graduations thereon, adjusting the movable split collar for the purpose, remove the safety pin 17, point the rifle in the desired direction, having the proper elevation (about 45 degrees), fire the rifle having a blank charge therein. The plunger carrying the percussion cap frees itself from its locking ring 19, and moves forward with such force that the percussion cap 22, is exploded upon impact, by coming in contact with the firing pin 1, the flame from the cap is communicated through a central opening in the plunger, which is filled with dry gun cotton, to the detonator 6, which is in turn ex-

ploded, and this in turn explodes the charge of high explosive in the body 8, of the grenade.

It is evident that the design, as shown, is simply representative of the principle, and that varying means of securing the grenade in its proper position in the bore of the rifle, may be employed, and that various combinations of the parts are possible without affecting the principle involved.

Having fully described and set forth the nature of my invention, and in what manner the use of same is to be performed, what I claim is—

1. A grenade for small arms, comprising a main body portion, containing a high explosive charge, a detonator and a range graduated stem of rigid material, by means of which the grenade may be fitted to the bore of the gun, for ejection therefrom.

2. A grenade for small arms, comprising a main body portion, containing a high explosive charge, a detonator, a range graduated firing stem adapted to be projected from the bore of a gun by the explosion of a blank charge therein.

3. A grenade for small arms, comprising a main body portion, containing a high explosive charge, a detonator, a firing stem, and suitable graduations on the stem to indicate the amount the stem should be inserted in the muzzle of the rifle, to attain the desired range.

4. A grenade for small arms, adapted to be fired by means of a blank charge, comprising a main body portion, containing a high explosive, a detonator, a firing stem, suitable range graduations on the stem and an adjustable collar to regulate the amount the stem should be inserted in the bore to give the desired range.

5. A grenade for small arms, adapted to be fired by means of a blank charge, comprising a main body portion, containing a high explosive, a detonator, a range graduated firing stem, a percussion cap, a firing pin, and vanes or blades for guiding or steadying the same in flight, as fully set forth.

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

EDWIN BURR BABBITT.

Witnesses:

FREDERIC H. SMITH,
PHILIP T. MÜLLER.