W. L. CLAY, J. C. BEATTY AND D. G. BAKER.
ARMOR PIERCING TRACING BULLET.
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Ex. 1.

Ex. 2.

Ex. 3.

Inventor

[Signature]
UNITED STATES PATENT OFFICE.

WALLACE L. CLAY AND JOHN C. BEATTY, OF THE UNITED STATES ARMY, AND DICKERSON G. BAKER, OF GREENFIELD, MASSACHUSETTS.

ARMOR-PIERCING TRACING-BULLET.


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To all whom it may concern:

Be it known that we, WALLACE L. CLAY, lieut. col., Ordnance Department, United States Army, at present stationed at Frankford Arsenal, John C. BEATTY, lieut. col., Ordnance Department, United States Army, at present stationed at Washington, District of Columbia, and DICKERSON G. BAKER, all citizens of the United States, and residents, respectively, of Bridesburg, Montgomery county, Pennsylvania, Washington, District of Columbia, and Greenfield, Franklin county, Massachusetts, have jointly invented an Improvement in Armor-Piercing Tracing-Bullets, of which the following is a specification.

The invention described herein may be used by the Government, or any of its officers or employees in prosecution of work for the Government, or by any other person in the United States, without payment of any royalty thereon.

This invention relates to a device for denoting the location of an objective for a fire arm and commonly known as armor piercing tracing bullets, to enable a gunner to so aim or adjust the fire arm as to accurately place the shot, and has for one of its objects to produce a bullet which will not only penetrate armor but which also carries a tracey composition operating to enable the bullet to be traced in its flight.

Another object of the invention is to provide a device of this character having means whereby the vapor and light producing composition is protected during the flight of the projectile, and the emanations controlled and directed.

Another object of the invention is to provide a device of this character having means whereby the protecting device is utilized to receive the "rifling" during its passage through the gun.

With these and other objects in view the invention consists in certain new and useful improvements hereinafter described and specifically set forth in the claims, and in the drawings illustrative of the preferred embodiment of the invention—

Figure 1 is a longitudinal section of the improved projectile.

Fig. 2 is a side elevation of the projectile without the cap.

Fig. 3 is a detached side elevation of the protecting cap.

The improved projectile comprises a body 10 pointed at the forward or penetrating end and reduced in diameter toward the rear as shown at 11. The rear part of the pointed body is cylindrical in outline with its sides in parallel relation, while the sides of the reduced part also extend in parallel relation.

At its juncture with the forward larger part or body of the projectile the part 11 is still further reduced to form an annular channel 12 as shown more clearly in Fig. 2. The reduced part of the body is formed hollow, or with a rearwardly directed cavity on its outer side, to contain a vapor and light producing substance or compound, indicated at 14.

Bearing over the reduced rear part 11 of the body of the projectile is a cap or ferrule 15 having its open end reduced as shown at 16, and secured in position by compressing or "crimping" the same into the channel 12 and thereby firmly securing the cap in position.

At its rear end the cap is formed with an aperture 17 providing means for the entrance of a portion of the flame from the firing charge, not shown, to ignite the contents 13 of the projectile.

The outer face of the cap 15 is slightly greater in diameter than the body portion 10, so that the cap will "take" the rifling when the projectile is fired. The cap 15 is formed of a brittle metal which is readily fractured by impact or by other pressure producing means.

A projectile thus constructed will not only penetrate armor but also by carrying the tracer composition emit a cloud or vapor throughout the flight by daylight and a flash or flash during the flight by night.

The tracer composition will burn throughout a flight of about 300 or 400 yards, and will thus enable the gunner to trace the flight of the projectile for that distance.

Having thus described the invention what is desired to secure by Letters Patent is:

1. A tracer projectile including a body having an armor piercing forward portion and a reduced rear portion, the reduced portion having a rearwardly opening recess...
containing a substance for producing a visible vapor and a flash of light, and a cap engaging over the reduced portion and having an aperture through which the vapor and flash producing substance is ignitable.

2. A tracer projectile including a body having an armor piercing portion and a reduced rear portion, the reduced portion having an annular channel at its juncture with the forward portion and likewise provided with a rearwardly opening recess containing a substance for producing a visible vapor and a flash of light, and a cap engaging over the reduced portion and directed at its edge into the channel, said cap having an aperture through which the vapor and flash producing substance is ignitable.

3. A tracer projectile including an armor piercing body portion having a rearwardly opening recess formed therein for containing tracer material, and a cap engaging over the recessed portion of the body and having a larger external diameter than said body portion for taking the rifling of the gun.

WALLACE L. CLAY.
JOHN C. BEATTY.
DICKERSON G. BAKER,