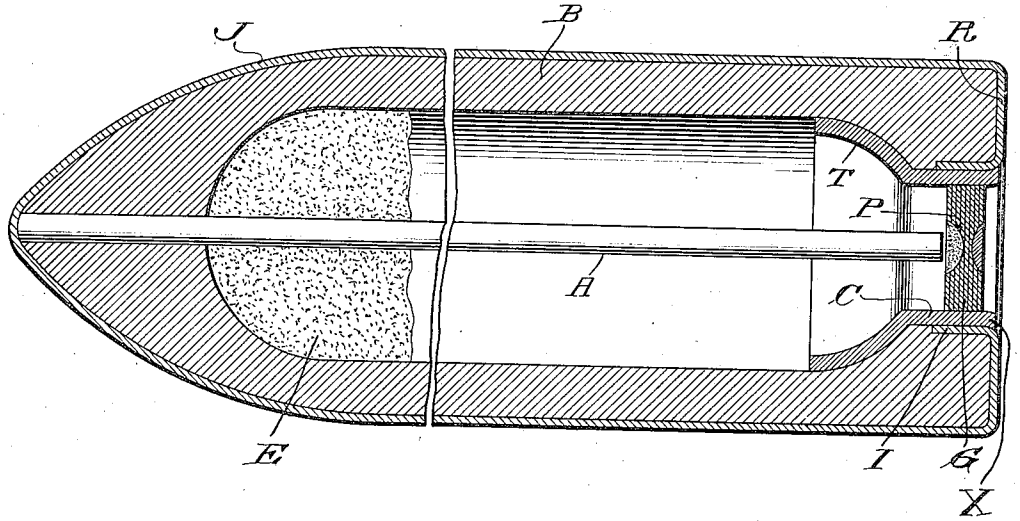
Jan. 29, 1924. 1,481,872

C. H. MILLER

PROJECTILE

Filed May 24, 1923



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Patented Jan. 29, 1924. 1,481,872

UNITED STATES PATENT OFFICE.

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PROJECTILE.

Application filed May 24, 1923. Serial No. 641,078.

To all whom it may concern:

Be it known that I, CHARLES H. MILLER, citizen of the United States, residing at Lineville, in the county of Wayne and State of Iowa, have invented certain new and useful Improvements in Projectiles, of which the following is a specification.

This invention relates to ammunition, and more especially to projectiles; and its objects are to produce a bullet or projectile which might be said to carry its own cartridge, since nothing remains in the gun after firing and hence there is no cartridge shell to be ejected; to improve the structure of the bullet itself, facilitate its loading, and prevent undue expansion and distortion in firing; and to improve the structure of the primer and utilize it to close the explosive chamber in a safe, reliable, and waterproof manner.

These and other objects are carried out by forming my improved projectile as hereinafter described and claimed, and as shown in the accompanying drawing which illustrates a longitudinal section of the projectile with part of its firing charge omitted.

In the drawings the letter B designates the bullet proper which may well be of lead, and is formed cylindrical and hollow, being closed and preferably tapered and thichened at its front end and internally reduced but not closed at its rear end. Within the latter is rather closely fitted a thimble T as of steel, the forward portion of the thimble being expanded within the bore of the bullet, and its rearward portion C being substantially cylindrical and extending to a line flush with the rear end of the bullet as shown. A firing pin or anvil A, such as a steel or iron rod, is embedded at its front end in the front end of the bullet, extends thence along the axis of its bore, and stands at its rear end within the cylindrical portion C of the thimble. Finally, a jacket J as of soft steel, copper, or the like closely encloses the bullet, is crimped at its rear end R around the rear end of the bullet, and is thence carried inward as at I around the cylindrical part of the thimble.

The projectile as thus far described is loaded by pouring the charge of explosive E into the bore or chamber within the bullet B around the anvil A, and pressing, tamping, or otherwise firming it in place. Either before or after loading, the rear extremity of the thimble is expanded or upset as at X to lock it to the inturned or crimped portion of the jacket. When the charge E is complete, the thimble is closed with a wad, preferably a molded grain G of powder which is wedged tightly into the cylindrical portion C of such thimble and preferably coated or painted over externally with shellac or waterproof varnish; and this closure carries the primer P which now stands adjacent the rear end of the anvil A, yet out of contact therewith so that the article cannot be fired by accident or careless use.

While primarily intended for use in rapid-fire and automatic fire-arms, I do not wish to be limited to that use of this improved projectile; nor to its size, shape, and specific details of construction. For instance, by use of a proper charge, or portions thereof, the projectile might become an incendiary- or tracer-bullet; and other amplifications and modifications will occur to the maker. While I prefer always to employ a waterproof coating on the primer grain or wad, the breech of the projectile when used on automatic small-arms would be further protected by the tin-coated clips containing ten shells each, and for rapid-fire arms the projectiles would be assembled in light flat tubes of a hundred each.

In any use, the projectile is inserted into the gun and fired by the usual firing mechanism. The firing pin drives the grain or wad G forward, the primer P is exploded by impact with the anvil A, and the charge E is fired at a point within the thimble. It is possible that the latter may be given a gentle taper and the material of the bullet B and jacket J may be such that the expansion of the gases will drive the thimble slightly to the rear within them and expand them radially into the rifling of the gun; but this is not necessary although it may sometimes be considered desirable. The rapidly expanding gases and exploding charge drive the wad or grain G out the rear end, and if it be powder it is entirely consumed, so that nothing is left within the gun. The entire projectile is now ejected by the charge squirting out the open rear end thereof, and it continues to be so emitted in the flight of the bullet through its course—even perhaps under water. The gun is instantly ready for renewed use, as obviously there is no cartridge shell to be ejected.

What I claim is—

1. A projectile comprising a cupped bul-

let, an anvil fixed along its axis, an explosive charge surrounding the anvil, a wad closing the open rear end of the bullet, and a primer carried by the wad in juxtaposition to the anvil.

2. Same as claim 1, plus: the wad itself being of powder shaped to fit said open end tightly.

3. A projectile comprising a tubular bullet closed at its front end, an anvil fixed along its axis, an explosive charge surrounding the anvil, a thimble in the open rear end of the bullet, a wad in the thimble, and a primer carried by the wad in juxtaposition to the anvil.

4. Same as claim 3, plus: that portion of the timble surrounding the wad being substantially tubular, and the forward portion within the bullet being flared.

5. Same as claim 4, plus: and a jacket surrounding the bullet, crimped over its rear end, and turned forward around the tubular portion of the thimble.

6. Same as claim 3, plus: and a jacket surrounding the bullet at its rear end and carried forward around the thimble, the latter being expanded to lock it to the jacket.

7. In a projectile, the combination with a tubular bullet closed at its front end, a thimble having a tubular portion standing within the open rear end of the bullet, and a jacket enclosing the entire bullet and turned in around said portion of the thimble and fastened thereto; of a wad and primer within said portion, and a firing charge in the bullet.

8. Same as claim 7, plus: and means within the bullet to ignite said primer when the wad is driven forward by the firing pin.

9. Same as claim 7, plus: said thimble being flaring at its forward portion and the bore of the bullet tapered to fit thereon.

10. Same as claim 7, plus: such wad being a grain of powder shaped to fit said tubular portion frictionally, a firing anvil fixed within the bullet in juxtaposition to said primer, and means for preventing the ejection of the thimble from the bullet by the explosion of its charge.

11. Same as claim 10, plus: said last named means including the enlargement of the forward portion of the thimble and the shaping of the bore of the bullet to fit thereon.

In testimony whereof I affix my signature.

CHARLES H. MILLER.