PUBLISHED
MAY 4, 1943.
BY A. P. C.

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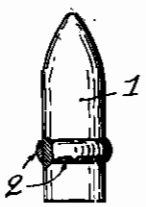
Filed April 25, 1941

Serial No.
390,242



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ALIEN PROPERTY CUSTODIAN

PROJECTILES PARTICULARLY INTENDED FOR SMALL CALIBRE FIRE-ARMS OF VERY FLAT FIRING

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Application filed April 25, 1941

Since the creation of modern portable fire-arms, the research of a flatter trajectory for rifles and automatic fire-arms is a question which is constantly studied by technicians in ballistics.

In fact, it is known that by increasing the flattening of the trajectory, the double advantage is obtained of increasing the efficiency of the firing for undetermined distance and of maintaining the efficiency of the firing without modifying the tangent scale (or breech-sight) on a target which approaches or moves away. A solution of the problem consists in increasing the initial velocity of the projectile by using light projectiles.

One object of the invention is to provide projectiles or bullets of this kind which are particularly suitable when the problem of increasing the flatness of the trajectory is limited to short distances (case of an air fight, of firing at a low flying airplane, etc.).

According to the invention, the projectiles are made of tempered or hardened glass. Said projectiles, for one and the same volume, weigh three to four times less than projectiles made of brass, jacketed lead or steel presently used in rifles and more or less heavy automatic fire-arms.

The accompanying drawing diagrammatically shows an embodiment of the projectile according to the invention.

The projectile 1 is formed of a block of glass, the outer shape of which substantially corresponds to that of the usual metallic projectiles. It can be made of ordinary glass. However, it may sometimes be advantageous to use special glass. In particular, it may be advantageous in some cases to use glass of high density, 3 to 3,5 for instance. For obtaining determined perforating effects, use can be made of borosilicates having a great superficial hardness, in particular those having a high content in boric acid, a high alumina content and a very small percentage of alkali.

The projectile is moulded in a steel mould, the parts of which adapted to come into contact with the glass being carefully polished. The surface of the projectile will thus be perfectly smooth so as to reduce to the minimum the resistance of air.

After moulding and slightly shaping the end, the projectile will be hardened by one of the known processes, i. e. by air, oil or by a salt-bath or the like. The bullet made of hardened glass has the property of not breaking under the shocks to which any projectile is exposed during transports and manipulations of all kinds, from the time it leaves the works where it is manufactured until it is introduced into the rifler or fire-arm. On the other hand, hardening allows it to withstand, without damage, the stresses of inertia at the moment it is projected. The degree of hardening can be modified by adjusting the temperature of the glass, and of the hardening bath, as well as the duration and the intensity of the hardening operation.

After hardening, the projectile is provided with one or more driving-bands 2 made of soft metal such as copper, brass, aluminium or lead. As is known, the depth of the rifling of portable fire-arms is generally smaller than $\frac{2}{10}$ mm. so that the thickness of the driving-band can be very small. The driving band can thus be applied on the projectile in a very simple manner by a metal-plating process effected with a spraying-pistol. The driving-band is rendered more compact by burnishing with a rag buffing-wheel or any other polishing tool.

It will be noted that the metal-plating process with a spraying-pistol offers the advantage of ensuring an extremely powerful adherence of the driving-band on the hardened glass, so that the driving-band perfectly withstands the tearing off stresses. If desired, the projectile can be provided with a small groove at the place where the driving-band is mounted.

Of course, the invention is not limited to the details of execution above mentioned which have been given only by way of example.

BERNARD LONG.