

Projectile for infantry ammunition

The invention relates to a projectile for infantry ammunition according to the preamble of claim 1.

Projectiles for infantry ammunition in a known manner comprise a projectile core with a projectile nose and a metal casing, wherein the projectile core is made of lead. Firing lead projectile generates lead-containing gases, which are detrimental to health. Lead moreover pollutes the environment.

The underlying object of the invention is to improve a projectile for infantry ammunition according to the preamble of claim 1 in such a way that a durable connection between projectile core and metal casing is achieved.

In accordance with an aspect of the invention, there is provided projectile for infantry ammunition comprising a projectile core with a projectile nose and a metal casing, characterized in that the metal casing is a case, which is open at the front end and is drawn from the rear onto the projectile core, wherein the projectile nose projects from the metal casing and there is disposed on the projectile core a necking, into which the open front casing end projects.

The necking therefore holds the metal casing fast and prevents the latter from being pulled off upon penetration into a non-rigid medium. It is moreover highly advantageous that the casing end consequently lies in the flow shadow of the projectile nose.

In an advantageous development of the invention the projectile core is made of hardenable steel, tungsten, metal carbides, sintered metals or ceramic material.

- 5 The metal casing is preferably made of copper, a copper alloy, clad steel, soft iron or a zinc-tin alloy.

Advantageously at least one relief groove is disposed on the outer periphery of the projectile core, wherein the
10 metal casing may rest in the region of the relief groove against the projectile core. These relief grooves may be of differing diameters and widths and may be arranged distributed over the entire length of the projectile.

- 15 A twist transmission is effected by the projectile portions having diameters that match the appropriate projectile calibre.

The base of the metal casing advantageously has a
20 greater thickness than the wall thickness of the cylindrical part. The thickness of the base of the metal casing may however alternatively be less than or equal to the wall thickness of the cylindrical part. The base may be convex or concave with e.g. radii of
25 between 0.5 and 10 calibres or flat. Alternatively the base of the metal casing may form a concave or convex cone point.

The shape of the rear of the metal casing may be conical
30 with an angle of between 0° and 90° . The rear is the region of the metal casing adjoining the base.

The projectile core is advantageously roughened or knurled, thereby achieving a better seating of the projectile casing and/or metal casing on the projectile core.

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Further features of the invention arise from the single drawing, which is described below.

The reference character 1 denotes the projectile core, which is made of hardenable steel, tungsten, metal carbides, sintered metals or ceramic material. The projectile core 1 has a projectile nose 13, which projects from a metal casing 2.

15 The metal casing 2 is made either of copper, a copper alloy, clad steel, soft iron or a zinc-tin alloy. Other metals are however also conceivable.

The metal casing 2 is drawn from behind, i.e. from the rear 12 onto the projectile core 1, wherein the projectile nose 13, as already mentioned, is exposed.

For the durable fastening there is disposed on the projectile core 1 a necking 4, into which the open front casing end 5 projects. The casing end 5 therefore lies in the flow shadow of the projectile nose 13.

The diameter of the projectile nose is smaller than the field diameter.

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Provided on the outer periphery of the projectile core 1 there is in this particular case a single relief groove 7, whereby the metal casing 2 rests against the

projectile core 1. It is however also possible to select a form of construction having a plurality of relief grooves, e.g. of differing widths and diameters.

- 5 A twist transmission is effected by projectile portions having cylinder diameters that match the appropriate projectile calibre (see e.g. portions 9).

10 The base 10 of the metal casing 2 has a greater thickness than the wall thickness in the cylindrical region. In this embodiment the base is flat. It may however alternatively be convex or concave with radii of between 0.5 and 10 calibres. The base shape may also be configured as a convex or concave cone point.

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In the embodiment illustrated here, the rear 12 adjoining the base is of a cylindrical design. It may however alternatively be cone-shaped.

- 20 The projectile nose may be of any conventional shape, e.g. from pointed to flattened.

Claims

1. Projectile for infantry ammunition comprising a projectile core with a projectile nose and a metal casing, characterized in that the metal casing is a case, which is open at the front end and is drawn from behind onto the projectile core, wherein the projectile nose projects from the metal casing and there is disposed on the projectile core a necking, into which the open front casing end projects.
2. Projectile according to claim 1, characterized in that the projectile core is made of hardenable steel, tungsten, metal carbides, sintered metals or ceramic material.
3. Projectile according to claim 1 or 2, characterized in that the metal casing is made of copper, a copper alloy, clad steel, soft iron or a zinc-tin alloy.
4. Projectile according to one of claims 1 to 3, characterized in that at least one relief groove is disposed on the outer periphery of the projectile core.
5. Projectile according to claim 4, characterized in that the metal casing rests in the region of the relief groove against the projectile core.
6. Projectile according to one of claims 1 to 5, characterized in that the base of the metal casing

has a greater thickness than the wall thickness of the cylindrical part.

7. Projectile according to one of the claims 1 to 6, characterized in that the base of the metal casing is convex or concave with radii of between 0.5 and 10 calibres or flat.
8. Projectile according to one of claims 1 to 6, characterized in that the base of the metal casing forms a concave or convex cone point.
9. Projectile according to one of claims 1 to 8, characterized in that the shape of the rear of the metal casing is conical with angles of between 0° and 90° .
10. Projectile according to one of claims 1 to 9, characterized in that the projectile core is roughened or knurled.