

⑫ **EUROPEAN PATENT APPLICATION**

⑫ Application number: **82107739.3**

⑫ Int. Cl.<sup>3</sup>: **F 42 B 13/20, F 42 B 31/00,**  
**F 42 B 13/02**

⑫ Date of filing: **24.08.82**

⑬ Priority: **27.08.81 US 296739**

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⑭ Date of publication of application: **09.03.83**  
**Bulletin 83/10**

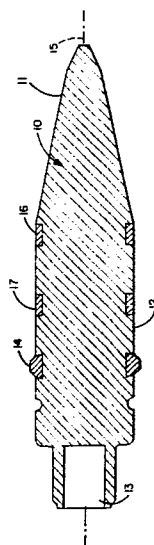
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⑮ Designated Contracting States: **BE CH DE FR GB IT LI**  
**NL**

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⑯ **Practice projectile and method of making said projectile.**

⑰ A practice projectile is disclosed comprising a body (12) of aluminum die-casted into a driving band (14) and at least one wear ring (16, 17) coaxial about the axis (15) of the projectile.



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August 23, 1982  
A2108992 EP  
HZ/ep

Practice Projectile and Method  
of Making said Projectile

Field of the Invention

The present invention relates to a practice projectile according to the preamble of claim 1 and to a method of making said projectile.

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Background of the Invention

10 The training of gunners unavoidably entails target practice using the arms in question, and the cost of ammunition for this purpose is considerable. For target practice many of the refinements needed in actual projectiles, such as explosive war-heads, for example, are not necessary to the training procedure.

15 It is, therefore, the object of the present invention to provide a low cost practice projectile with the behaviour of an actual projectile. This object is achieved by the characterizing features of claim 1. Further advantageous  
20 embodiments of the projectile according to the present invention as well as of a method of making it may be taken from the dependent subclaims.

Brief Summary of the Invention

The present invention comprises a target practice projectile which may be given the ballistic characteristics of an actual projectile, yet is less expensive and has minimum affect on the barrel of the firing piece.

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Various advantages and features of novelty which characterize the invention are pointed out with particularity in the claims annexed hereto and forming a part hereof. However, for a better understanding of the invention, its advantages, and objects attained by its use, reference should be had to the drawing which forms a further part hereof, and to the accompanying descriptive matter, in which there is illustrated and described a preferred embodiment of the invention.

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BRIEF DESCRIPTION OF THE DRAWING

The single figure of the drawing is an axial section of a target practice projectile according to the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

5 A projectile according to the invention comprises a body 10 of solid aluminum including a forward nose portion 11 which tapers outwardly and rearwardly to join a generally cylindrical body portion 12 which may, for example, be of 25 millimeter caliber. A tracer cavity 13 may be provided in body portion 12 if desired. The body is provided with a "driving band" or ring 14 of metal chosen to cooperate with the lands in the barrel of a firing piece to give the projectile the spin about its axis 15 necessary for proper performance; suitable metal for ring 14 is 1008 or 1010 steel. Also provided is a wear ring 16 of ordinary 1014 or 1018 steel positioned near the front of the body portion to protect the firing barrel from the aluminum build-up which otherwise ensues when projectiles of this metal are fired. If necessary, a further ring 17 may be provided and located along the axis to give the round the desired mass and ballistic performance.

20 The projectile is best manufactured by die-casting the aluminum into a previously prepared driving band positioned in a suitable mold, and rings 16 and 17 may conveniently be applied in the same fashion. The band and rings are preferably finished internally by broaching, to provide a surface giving good adhesion with the aluminum.

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The result is a relatively inexpensive projectile which may be used for target practice, since it can be given the same ballistic characteristics and tracer capability as an actual projectile, and yet which does not adversely affect the barrel of a  
5 piece through which it is fired.

Numerous characteristics and advantages of the invention have been set forth in the foregoing description, together with details of the structure and function of the invention, and the novel features thereof are pointed out in the appended  
10 claims. The disclosure, however, is illustrative only, and changes may be made in detail, especially in matters of shape, size and arrangement of parts, within the principle of the invention, to the full extent indicated by the broad general meaning of the terms in which the appended claims are expressed.

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Claims:

1. Projectile extending rearwardly along an axis from a tapered forward nose portion (11) to a generally cylindrical body portion (12), characterized in that said projectile (10) consists of die-castable material.  
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2. Projectile according to claim 1 for firing from a piece having a rifled bore, characterized by a driving band (14) encircling and secured to said body portion (12) at a site spaced from said nose portion (11).  
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3. Projectile according to claim 1 or 2, characterized by a wear ring (16) encircling and secured to said body portion (12) near the junction thereof with said nose portion (11).  
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4. Projectile according to claim 3, characterized by a further ring (17) encircling and secured to said body portion at a site rearward of said wear ring (16).  
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5. Projectile according to claim 1 or one of the following claims, characterized in that it consists of aluminum.  
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6. Projectile according to the claims 2 to 4, characterized in that the driving band (14) and the wear rings (16, 17) consist of steel.  
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7. Method of making a practice projectile according to claim 2 or one of the following claims, characterized by inserting the driving band (14) into a mold and die-casting metal into said mold.  
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8. Method of making a practice projectile according to  
claim 3 or one of the following claims, c h a r a c -  
t e r i z e d b y inserting at least one wear ring  
(16, 17) into a mold and die-casting metal into said  
5 mold.

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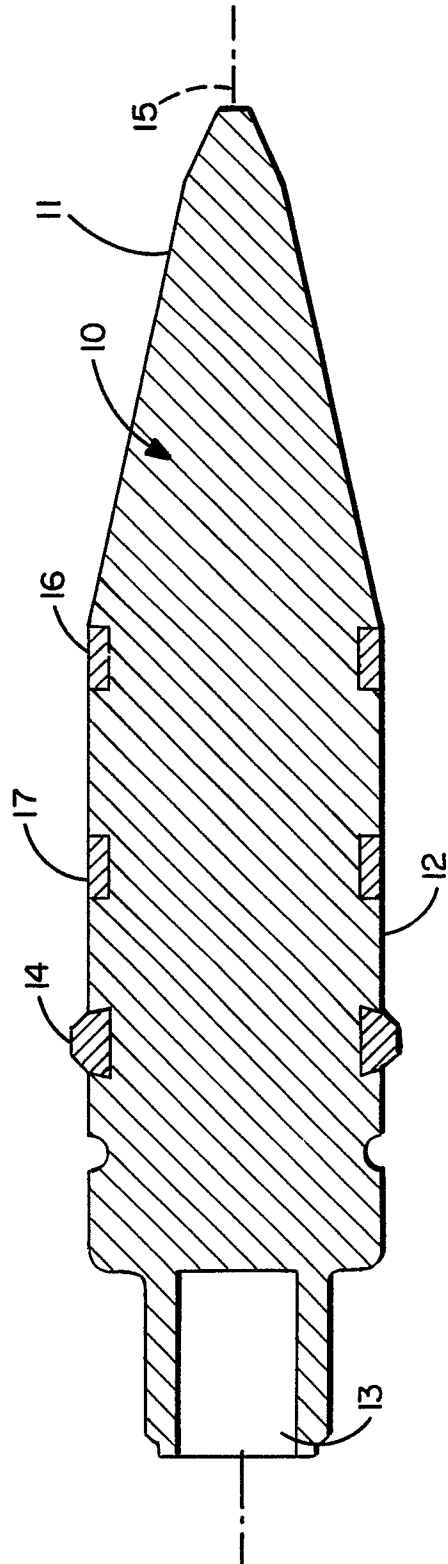
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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. <sup>3</sup> )
X, Y	EP-A-0 007 695 (FORD AEROSPACE) *Page 1, lines 24 and 25; pages 2, lines 1-5*	1, 2, 3, 4, 5	F 42 B 13/20 F 42 B 31/00 F 42 B 13/02
Y	FR-E- 5 398 (KRUPP) *The whole document*	2, 3, 4	
Y	US-A-2 926 612 (OLIN) *Column 1, lines 34-47 and 55-58; column 3, line 37-42*	5	
X	FR-A- 513 606 (RIBEYRE) *The whole document*	1, 5	
A	CH-A- 6 474 (FÖRSTER) *The whole document*	5	TECHNICAL FIELDS SEARCHED (Int. Cl. <sup>3</sup> )
A	FR-A-1 285 666 (OREGON) *Page 2, right-hand column, line 35; figure 1*	6, 7	F 42 B
A	GB-A- 630 414 (TRIGGS)		
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 05-10-1982	Examiner VAN DER PLAS J.M.
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			