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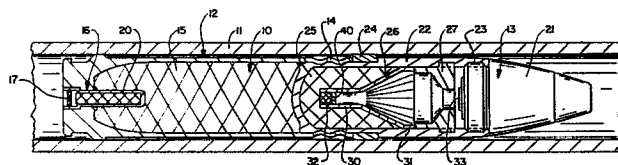
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⑧④ Designated Contracting States: **CH DE FR GB LI SE**

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⑤④ **Safety device for projectile.**

⑤⑦ In order to prevent premature ignition of a booster pellet (32) in a liner (26) of a projectile (13) a thermal barrier (40) is provided in said liner (26) in front of said booster pellet (32).



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PROJECTILE

TECHNICAL FIELD AND BACKGROUND OF THE INVENTION

The present invention relates to a projectile according to the preamble of claim 1.

Well known munitions rounds comprise a cartridge case,
5 of an appropriate caliber for insertion into the breach
of a gun having rifling lands and a projectile attached
to the cartridge case and including a forward fuze and
a rearward body bearing a "rotating ring" and containing
a charge of high explosives surrounding a liner having
10 a booster charge to be fired by a lead explosive in the
fuze.

It has been found that occasionally preignition of a high
explosive charge occurs, while the projectile is still in
15 the gun barrel. This is destructive of gun barrels and
hazardous to personnel.

It is therefore the object of the present invention to
improve known projectiles in such a manner that preignition
20 may not occur. This object is achieved by the character-
izing features of claim 1. Further advantageous embodiments
of the present invention may be taken from the subclaims.

BRIEF SUMMARY OF THE INVENTION

The present invention takes into account that at the moment of firing there is a possibility of hot propellant gasses from the cartridge case leaking between the fuze and body of the projectile to ignite the booster charge, and provides a thermal barrier be positioned in the retainer of the booster charge in such a way as to prevent such propellant gasses from reaching the booster, without disabling the more direct and powerful ignition effect of lead explosion by operation of the fuze.

BRIEF DESCRIPTION OF THE DRAWING

The single figure of the drawing is a somewhat schematic view in longitudinal section of a munition round of the type under discussion, ready to be fired from a gun.

DESCRIPTION OF THE PREFERRED EMBODIMENT

FIGURE 1 shows a munition round 10 in the barrel 11 of a gun. Round 10 comprises a cartridge case 12 and a projectile 13 interconnected by crimping at a connection 14. Cartridge case 12 includes a charge 15 of propellant and means 16 for firing the charge, which may include a primer 17 and a flash tube 20. Projectile 13 comprises a forward fuze 21 and a rearward body 22, interconnected

by a threaded connection 23. Body 22 includes a "rotating ring" 24 and a charge of high explosives 25, which is consolidated around a liner 26 secured in body 22 by a threaded retainer 27.

5 Liner 26 is of generally conical hollow configuration, and tapers outwardly from a rearward neck 30 to a forward rim 31 engaged by retainer 27. A booster charge 32 is consolidated in neck 30 and positioned to be detonated by impact of a high velocity mass
10 impelled rearwardly by discharge of a lead explosive 33 centrally located at the rear of fuze 21.

The function of ring 24 is to engage spiral lands in barrel 11, partly to cause projectile 13 to spin about its longitudinal axis as it leaves the
15 barrel, and partly to minimize the passage of propellant gasses past the projectile to discharge uselessly at the muzzle of the gun, and upon firing of the piece hot gasses are present around the connection between fuze 21 and body 22.

20 It has been discovered that on occasion hot gasses leak through the connection 23 into the center of retainer 22, and reach booster 32, igniting the booster which in turn ignites the high explosive, sometimes while the projectile is still in the gun
25 barrel, to the damage of the gun and the possible injury of personnel at the gun.

The invention here comprises a thermal barrier 40 positioned in neck 30 between booster 32 and retainer 27. Experience has shown that punchings
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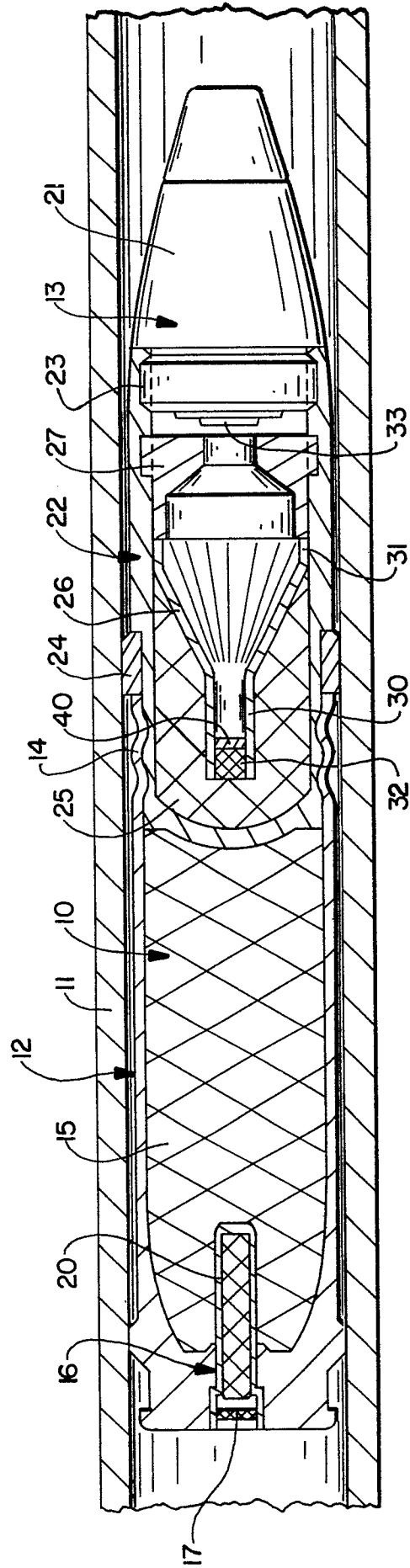
of DuPont Kapton, so positioned, prevent any momentarily present hot gasses leaking past connection 23 from thermally contacting booster 32 to ignite it: a sufficient thickness of Kapton to serve as a barrier of this sort has been found not to interfere with the impact on the booster of the high velocity mass from lead explosive 33, which can penetrate the barrier and reliably detonate the booster charge. It is convenient to punch the Kapton barriers sequentially from a roll of the material and concurrently introduce them into the liners, through the larger ends thereof, into contact with the boosters.

In one successful embodiment of the invention the thermal barrier was made of one layer of Kapton 0,0762 mm thick, inserted into neck 30 in contact with booster 32.

From the above it will be evident that the invention comprises means for preventing preignition of the booster charge in high explosive projectiles, by interposing a thermal barrier between the charge and adventitious hot gasses entering the projectile between the fuze and the projectile body.

Claims:

1. Projectile having a body (22) a generally conical
liner (26) surrounded by a warhead explosive (25)
5 in said body, and a booster pellet (32) at the narrow
end of said liner, c h a r a c t e r i z e d b y
a thermal barrier (40) overlying said pellet (32) to
prevent inadvertent contact therewith by hot gas
entering said liner during discharge of the projec-
10 tile (13) from a gun barrel (11).
2. Projectile according to claim 1, c h a r a c t e r -
i z e d i n t h a t said thermal barrier (40)
comprises a layer of Kapton.
15
3. Projectile according to claim 1, c h a r a c t e r -
i z e d i n t h a t said thermal barrier (40)
comprises a punching of Kapton inserted into said
liner (26) from the lager end thereof.
20
4. Projectile according to claim 1 or one of the following
claims, c h a r a c t e r i z e d b y a fuze (13)
connected to the forward end of said projectile body (22)
by means of threaded connection, and having a lead explosive (33)
25 arranged to impell high velocity mass rearwardly
to said booster pellet (32).





DOCUMENTS CONSIDERED TO BE RELEVANT			EP 83108695.4
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. ³)
X	DE - A1 - 2 204 823 (DIEHL) * Page 1, line 20 - page 2, line 18; claim 1; fig. 2 *	1	F 42 C 15/34
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A	FR - A1 - 2 334 087 (THOMSON- BRANDT) * Claims 1,3,4; fig. 4,5 *	1	

			TECHNICAL FIELDS SEARCHED (Int. Cl. ³)
			F 42 B 9/00 F 42 C 15/00
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
VIENNA		30-11-1983	KALANDRA
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone		T : theory or principle underlying the invention	
Y : particularly relevant if combined with another document of the same category		E : earlier patent document, but published on, or after the filing date	
A : technological background		D : document cited in the application	
O : non-written disclosure		L : document cited for other reasons	
P : intermediate document		& : member of the same patent family, corresponding document	