



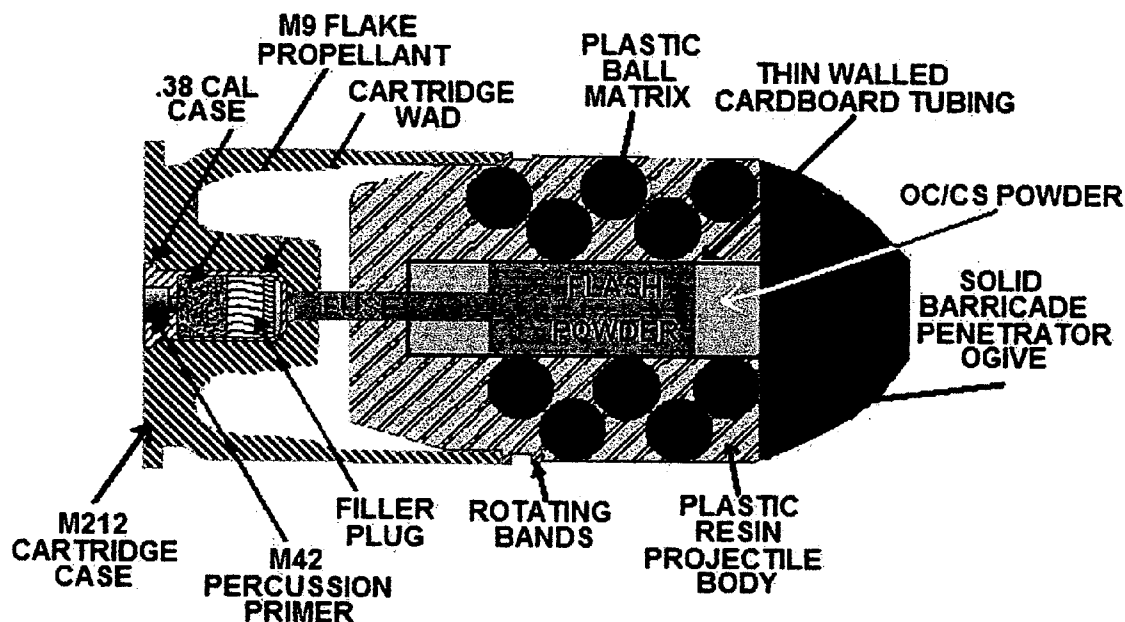
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(19) **United States**(12) **Patent Application Publication**
Confer(10) **Pub. No.: US 2008/0006171 A1**(43) **Pub. Date: Jan. 10, 2008**(54) **XM-5866 STINGBALL FLASHBANG
GRENADE**(52) **U.S. Cl. 102/497; 102/489; 102/477**(75) **Inventor: George Leroy Confer, Canton, PA
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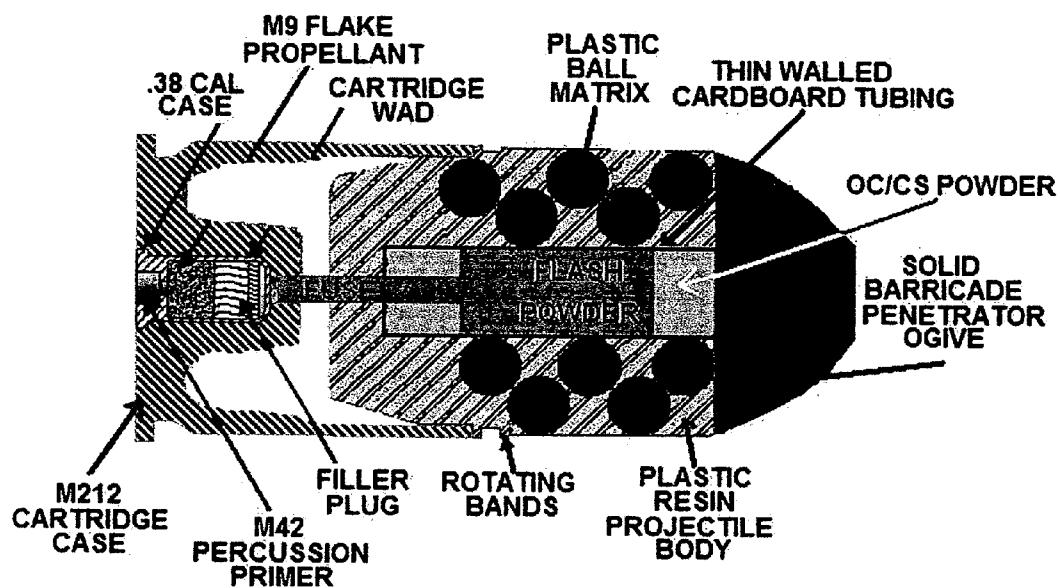
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F42B 12/32 (2006.01)(57) **ABSTRACT**

The grenade is a multi-purpose munition which can be used as a distraction device, like a flash bang grenade, and can be equipped with chemical agent powder for added capabilities. The grenade is also a sting ball grenade and is a less-lethal form of weapon, designed to reduce fatalities in civilians located in conflict areas. The munition is constructed to be low lethality, and capable of being launched from military and law enforcement 37 mm and 40 mm grenade launchers presently in use today. It is designed to be used in multiple roles when lethal projectiles are not a viable or preferred option, such as hostage situations, riots, room and building clearing operations, narcotics interdictions, distraction and diversionary purposes, and as a method of introducing a chemical agent into a small area from a distance. The grenade can be employed from distances over 400 yards, extending the range of the present art, which is 30 yards.

40mm Stingball Flashbang Grenade

40mm Stingball Flashbang Grenade



XM-5866 STINGBALL FLASHBANG GRENADE

CROSS-REFERANCE TO RELATED APPLICATION

[0001] N/A

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] N/A

BACKGROUND OF THE INVENTION

[0003] The need for low lethality projectiles is well known in the art, and additionally can be inferred from the promulgation by the National Institute of Justice of low lethality qualifying standards found in standard 0101.03 tests. Ammunition such as rubber buckshot, bean bag, muzzle blast chemical agents and such are presently widely used by both military forces and law enforcement. These devices are designed to provide a less lethal option in individual or group incapacitation, or behavior modification. These devices are severely limited however, in their final use, due to short ranges of deploy ability, and by environmental factors such as wind, snow, or rain. Also, these devices cannot affect individuals inside vehicles or in thick cover conditions. These devices also require the personnel deploying them to be within 30 meters of the target.

[0004] Broadly, it is an object of the present invention to provide a low lethality anti-personnel projectile overcoming the shortcomings of the prior art, and provide a multi-purpose projectile, user-friendlier for the personnel deploying such munitions.

[0005] The description of the invention which follows, together with the accompanying drawing should not be construed as limiting the invention to the example shown and described, because those skilled in the art to which this invention appertains will be able to devise other forms thereof within the ambit of the claims.

BRIEF SUMMARY OF THE INVENTION

[0006] The grenade is designed to be a multi-purpose, multi-role 40 mm less lethal type munition. The round is a fixed 40 mm munition capable of being fired from any 40 mm launcher in service today. It can also be manufactured for use in 37 mm LE launchers. The round is made of a poured resin plastic material containing .32 or .45 or .60 caliber rubber stingballs, in a ball matrix pattern surrounding an explosive core. The ogive portion of the round may contain aluminum powder and is solid to aid in barricade penetration. The round uses a safety time delay fuse, which is ignited by the cartridge lift charge, therefore it will not explode on impact as most 40 mm munitions are presently designed. The round is designed to be safe for the user, and provide an effective use of force option out to ranges of 400+ meters when deadly force options are limited. The round can be used by military, law enforcement, and corrections personnel when lethal 40 mm rounds are not desired, such as when noncombatants are in the area. It is designed to be used in multiple roles when lethal projectiles are not a viable or preferred option, such as hostage situations, room and building clearing operations, narcotics interdictions, distraction and diversionary purposes, and as a method of intro-

ducing a chemical agent into a small area from a greater distance than present munitions allow.

BRIEF DESCRIPTION OF THE DRAWING

[0007] The attached drawing shows a cross sectional view of the proposed grenade, mounted in a standard M-212 40 mm casing (the casing is shown in the drawing). The individual parts of the grenade are pointed out, as well as the parts of the casing itself.

DETAILED DESCRIPTION OF THE INVENTION

[0008] The outer shape of the grenade is produced by using a silicone rubber mold of a 37 mm or 40 mm projectile of the type presently in use by law enforcement or military forces. A liquid resin plastic is mixed, and a nosecone portion is poured. Metal powder can be mixed with the resin plastic to add weight and also provide barricade penetration ability. An M-80 type small explosive device is placed into the liquid of the nosecone (partially) and held there until the nosecone hardens. In the case of a "sting ball matrix" type projectile, the rubber balls (32, 45 or 60 caliber) are then placed into the mold, filling the space directly around the M-80 type explosive device. Additional resin plastic is then poured into the mold, until the mold is filled, leaving approximately 1/4" of the safety fuse exposed to the rear. The projectile is then allowed to harden completely. The resin plastic comes in a variety of colors, and hardness. I only note this here as to clarify the types of modifications, which can be done to alter the appearance of this munition. During construction of the M-80 type explosive device, powdered chemical agents can be added on either end, to increase the capabilities of this munition. The projectile is then seated in a primed casing, of either 37 mm or 40 mm type. These casings are commonly used to launch munitions of this type from 37 mm and 40 mm grenade launchers. The 40 mm casings carry the designation of M-118 for aluminum casings, and M-212 for nylon casings. Both casings use a high-low pressure launching system. This system is compatible with this munition, and will ignite the safety fuse, causing this munition to function properly. The projectile is seated in the M-118 or M-212 casing and sealed in place using a RTV silicone sealant (to maintain a moisture proof environment inside the munition).

[0009] The projectile varies in size and shape. The outer dimensions of the projectile would be 37 mm and 40 mm respectively. (40 mm are more commonly used by the military) The color of the projectile can also vary. Raised letters or bumps can be added to the munition to aid in nighttime recognition of rounds (as in the presently used 40 mm pyrotechnic devices). The projectile can be marked, to indicate the type and caliber of the munition.

Physical Description:

[0010] A. Size: Length=(Short Range) 2.75" (Long Range) 3"+

[0011] B. Projectile Weight: Will vary with further development, and type of payloads

[0012] C. Power Requirements: Less than 1/4 oz of flash type explosive mixture

[0013] D. Caliber: 40 mm or 37 mm depending on client needs.

Performance Characteristics:

[0014] A. Effect on target: Incapacitation caused by psychological effect, and/or temporary pain and extreme discomfort, and/or chemical incapacitation, or distraction due to light and noise at point of detonation.

[0015] B. Time to Effect: 2-6 seconds from launched deployment

[0016] C. Duration of Effect: Seconds to Minutes based on chemical additives and explosive content.

[0017] D. Effective Range: Depends on method of deployment. Round can be used as blunt force impact weapon at 10 meters and an area type weapon out to 400+ meters.

[0018] E. Burst effective radius: (Short range type) 5 Meters (Long Range type) 10 Meters. Also dependent on location of detonation ie: inside vehicles, ships, or buildings/rooms.

Delivery Means: 40 mm M-203 or M-79 type launchers or 37 mm LE Launchers

I. The munition is designed to contain multiple types of payloads that can be mission specific, such as rubber sting

balls, CS or OC chemical irritants, and pyrotechnic items such as colored smoke or flare stars.

II. The ammunition can be employed when non-combatants may be present in close proximity to combatants, with less chance of lethal results.

III. The munition can be employed in situations where the use of deadly force would not be authorized under existing laws.

IV. The grenade has longer range (400+ yards) than present less-lethal devices in service.

V. The device is not an impact detonated device, therefore can be fired through light skinned vehicles, glass, or doors to detonate on the inside, deploying payloads.

VI. The munition is waterproof, and can be used in wet environments, and can actually be fired into bodies of water.

VII. The munition (when equipped with a chemical agent) uses a blast dispersion method, which will not be prone to cause fires as burning type chemical agent grenades do.

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