The invention described herein may be manufactured and used by or for the Government for governmental purposes without the payment of any royalty thereon.

The present invention relates to a projectile for use in machine guns and artillery pieces wherein each individual round comprises a canister loaded with pellets which disperse upon collapse of the canister in firing.

Experience in warfare has shown that the ordinary single shot shell or projectile has been ineffective at close range in repelling mass attacks by the enemy and in discouraging enemy personnel from approaching tanks. It has been found however that ammunition utilizing a metal canister filled with pellets such as steel balls and having no explosive charge, has been effective for these purposes since the canister, which is projected by a propelling charge, breaks up upon leaving the muzzle of the gun, allowing the balls to scatter. It is therefore an object of my invention to disclose an improved projectile filled with pellets, for use in firing at close range.

A further object of my invention is to disclose a projectile which will improve a dispersal or shot pattern at a desired range for which the projectile is intended to be more effective.

It is also an object of my invention to disclose a canister specially constructed to protect the gun bore, and to prevent the pellets against immediate and ineffective dispersal until they have traveled to an effective range.

It is also a further object of my invention to disclose a typical stacking arrangement of pellets in the steel canister which will not have the tendency to “bunch” on set range and which therefore will not prematurely cause breaking up of the canister to injure the bore of the gun barrel.

A practical embodiment of my invention is represented in the accompanying drawing in which

Figure 1 represents an assembled round including the cartridge case.

Figure 2 represents a longitudinal section taken on line 2—2 of Figure 1.

Figure 3 represents a transverse section taken on line 3—3 of Figure 2 and showing a layer of pellets.

Figure 4 is an elevation looking to the left of Figure 2.

Figure 5 is a perspective of one of the cylindrical pellets.

The complete round comprises a cartridge case 1 which includes the usual propelling charge 2 and primer 2a, and the projectile or canister 3. The projectile per se includes a heavy cylindrical steel jacket or tubing 4, and an inverted base or cup 5 of heavy steel consisting of base 6 and skirt or rearwardly directed side wall portion 7. A raised bead band 8 is circumferentially formed on the flange of the base and is provided with circumferentially-spaced helical splines 9 (see Figure 1), fitting between the rifling lands of the barrel to cause the projectile to spin as it travels along the bore of the gun. The cartridge case 1 is crimped about and makes a tight fit about the flanged portion 7 of the base. In axial alignment with the cartridge case and extending forwardly is the tubing 4 which also is fitted tightly about the base and the present embodiment showing 7 layers of 19 slugs per layer. However it is to be understood that the size of slugs, number of layers, and slugs per layer may be varied. A chipboard liner 11 is interposed between the outer surfaces of the pellets on the side and top thereof and the steel jacket in order to facilitate packing of the pellets and to prevent them from rattling around in the canister. The steel jacket 4 is provided with 4 equiangularly spaced longitudinal slots 15, and a cover 12 is provided to close off the container. In order to hold the cover fast in the canister, the outer peripheral edge 13 of the canister is crimped over and is spot welded to the cover as at 14. The projectile above described is extremely effective in repelling mass attacks at close range and is constructed to reduce to a minimum the injury resulting to the bore of the weapon from which it is fired. Several factors militate to reduce wear on the bore. The heavy inverted steel base is provided to bear the brunt of the initial set back forces. In addition the heavy steel jacket 4 will resist the centrifugal action caused by the spinning of the projectile and the spreading of the heavy steel slugs as the projectile traverses the barrel. Since these slugs are cylindrical rather than ball-shaped the tendency to bunch is considerably reduced and bulging of the side wall is cut down until the projectile is free of the conning gun barrel. Experience and tests have shown that by using a canister having slots terminating short of the base of the steel jacket, I provide an effective number of resilient fingers which initially hold the pellets in mass, but which eventually yield due to centrifugal force of the spinning mass of pellets to permit dispersal. The function of the slitted jacket, therefore is to hold the pellets against immediate and ineffective dispersal during their travel to an effective range, to thus improve the shot or dispersal pattern at the desired range for which the projectile is intended to be most effective. When the canister collapses the pellets are free to disperse and in scattering they assume a cone shape to effect considerable damage upon enemy personnel at close range.

It is apparent that my device is superior to prior art projectiles in the provision of a heavy steel walled canister, a heavy metal base, in the shape and arrangement of slugs and in a new arrangement of elements to achieve a more effective projectile.

Other modifications and alterations of the structure which has been disclosed herein for purposes of illustration will be apparent to one skilled in the art, and it is obvious that the same may be made without departing from the spirit and scope of the invention as defined in the following claims.

I claim:

1. In a round of ammunition adapted to be fired from a rifled barrel, a heavy rigid cup-shaped unitary base having a rearwardly directed side wall and a flat forward face, a raised bead circumferentially formed on said side wall and provided with a rotating band, a cartridge case fitted about said base and secured thereto, said cartridge case including a propelling charge and a primer, a heavy steel tubular member secured about said side wall axially separated from said cartridge case by said raised bead and extending in a direction opposite to said cartridge case, a plurality of stacked cylindrical pellets re-
ceived in end to end relation in said tubular member to form a plurality of layers, the rearward faces of said pellets in said rearward layer being in juxtaposition with said flat face of said base, said tubular member forming with said pellets a canister adapted to be propelled as a projectile, said tubular member having a plurality of equiangular spaced longitudinal slots adapted to weaken said tubular member so that the forward end of said member spreads under the centrifugal influence of said pellets, causing said pellets to spin away from said projectile in a conical spray pattern.

2. A rotating projectile for a round of ammunition comprising a heavy metal generally cylindrical base having first and second reduced portions axially separated by a raised beaded portion, a rearwardly depending skirt portion, and a flat forward face, a plurality of circumferentially spaced helical splines forming a rotating band on said beaded portion, a heavy metal tubular canister having a closed end and an open end and having an inner diameter equal to the diameter of said reduced portions, said open end of said canister being secured about one of said reduced portions, a mass of short cylindrical metal pellets closely stacked in said canister in end to end relation, said canister being weakened by circumferentially equi-spaced longitudinal slots extending from the closed end of said canister to a point short of the base secured end of said canister, the arrangement of said pellets providing for transmission of setback forces rearwardly and axially to said heavy base when said projectile is fired, the closed end of said canister adapted to spread in flight under the centrifugal influence of the spin sensitive pellets acting against said slotted end, said pellets thereafter moving forwardly and radially from said canister by centrifugal force to constitute a conical pattern.

3. The projectile according to claim 2 wherein the forward end of said canister is closed by a temporary cover, the said forward end of said tubular member being crimped over and soldered to said cover.

4. The projectile according to claim 3 wherein a soft metal tube is interposed between said tubular canister and said pellets.

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