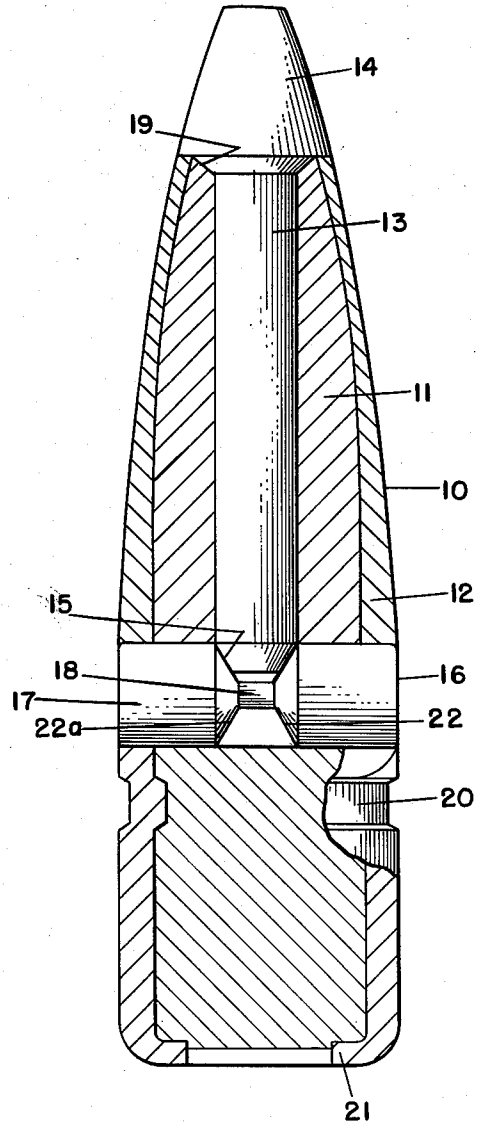
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FRAGMENTATION BULLET

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FRAGMENTATION BULLET

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

This invention relates to a projectile to be fired from a small arms rifle in which sub-projectiles are driven laterally from the larger projectile and has for its object to provide a method of and apparatus for guiding or directing said small projectiles from the larger.

A common way of ejecting fragments from a projectile has been by means of an explosive charge carried by the projectile. One difficulty with such a method is in directing the fragments where needed.

According to this invention sub-projectiles are guided laterally from a larger or main projectile after being given a mechanical camming impulse in response to rearward movement of an axial plunger after impinging upon a target. A preferred use for this improvement is in sporting rifles for hunting big game when the sub-projectiles are within the wild animal at the time of their being launched at a low velocity to enhance the chances of the big game being brought down with one shot especially when the lateral projectiles increase the chance of some one of the three projectiles contacting a critical portion of the animal's body.

Referring to the drawing, the single FIGURE is a magnified longitudinal cross sectional view of a 30 caliber projectile in which the present product invention has been embodied and shows only one embodiment of an apparatus which is useful in the performance of the process of this invention.

This projectile **10** comprises a body portion **11** of the usually used steel or other material having a jacket **12** of gilding metal or other appropriate material capable of being engraved by the lands and grooves of a gun barrel. The body **11** is provided with an axial hole in which is provided a plunger **13** of copper or other appropriate deformable material of the general shape illustrated and having a diameter of about .1 of an inch throughout most of its length for 30 caliber ammunition. The head **14** of this plunger **13** constitutes a nose portion of the projectile. The rear end of this plunger is tapered at **15** to about 30° to a longitudinal axis of the projectile. If more or less camming force is required of plunger **13**, the degree of taper may be varied accordingly. The enlarged head **14** of the plunger has a short portion **19** tapered at about 45° to the longitudinal axis of the projectile.

A short transverse rod of copper is provided with a reduced central portion to constitute two smaller or sub-projectiles **16** and **17** capable of being ejected laterally by a camming action of the plunger. The midportion **18** is of about .03 of an inch in diameter toward which slope the tapered faces **22** and **22***a* at substantially the same angle as the end **15** of the plunger **13**.

A peripheral indentation **20** assists the jacket **12** in

being anchored to the body **11** as is usual. The rear ends **21** of the jacket are spun over the rear end of the body **11** as is customary.

On rapid deceleration of the projectile **10** as occurs on penetration into the body of an animal, the head **14** is deformed into various shapes depending on the type of animal hit and other factors. For example, the head **14** may be flattened and sheared partially or entirely by the hard body **11** causing plunger **13** to be moved rearwardly after or at about the time the hard body **11** shears or extrudes some of head enabling the plunger to be moved as far rearwardly as is needed to rupture the reduced portion **18** and eject projectiles **16** and **17** in opposite directions by the camming action of taper **15** of the plunger upon tapers **22** and **22***a* of the projectiles **16** and **17**. The connecting portion **18** may fail in tension or it might be pushed downward and fail in flexure, or some of it might be sheared by the plunger. At any rate the sub-projectiles **16** and **17** are ejected under movement of plunger **13**.

The projectiles **16** and **17** need not necessarily be connected as shown in the drawing. Instead they might be separated along the longitudinal axis of the larger projectile provided some way is given for retaining them in place against centrifugal force throwing them outward. For example these sub-projectiles may be retained in place by a strong plastic coating between them and the body **11**. Or the metal jacket may be spun over the peripheral edge of these smaller projectiles **16** and **17**. Whatever way is used must be strong enough to resist centrifugal force but yet allow the wedging or camming action of plunger to release them for ejection. The smaller projectiles **16** and **17** are preferably of as soft a material as copper.

The body **11**, plunger **13** and jacket **12** must together be weak enough not to cause objectionable deformation of the head **14** on setback. The high speed of 2800 feet per second is adequate to hold the plunger against coming out of the body **11** during flight when air pressure on the plunger nose is substantial. This air pressure must not deform head **14** so much as to cause projectiles to be ejected before reaching the target animal.

A special advantage of the present projectiles for their use is the fact that the plunger **13** and the connected projectiles **16** and **17** are adapted for manufacture on an automatic screw machine or by die casting methods.

I claim:

1. A small arms projectile comprising a coaxial plunger extending rearwardly from a nose of said projectile, the rearward end of said plunger being bevelled and in engagement with the bevelled inner ends of sub-projectiles joined at their inner ends by frangible material for rupture by said plunger and laterally disposed about the bevelled rearward end of said plunger, said plunger and sub-projectiles being so constructed and arranged that said sub-projectiles will be ejected laterally by the mechanical camming impulse resulting from the rearward movement of said plunger after such impact of said nose as normally occurs when a projectile impinges on a target after firing.

2. A small arms projectile according to claim 1 wherein said frangible material comprises a reduced proportion of said sub-projectiles.

3. A small arms projectile having a length greater than

its width, said projectile comprising a transverse member having a mid-portion of reduced cross-sectional area and intermediate faces tapering inwardly toward said mid-portion, and a coaxial longitudinal member extending rearwardly from a nose of said projectile, said longitudinal member having a rearward face tapering inwardly towards said mid-portion and contiguous with at least a portion of each of said intermediate faces, said transverse and longitudinal members being so constructed and arranged that impact on said nose such as to urge said longitudinal member rearwardly and rupture said transverse member at its mid-portion will eject opposite portions of said transverse member laterally outwardly.

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