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Musgrave

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[54] **SHIELD FOR BALLISTIC CUTTERS**

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[52] **U.S. Cl.** **42/90**

[51] **Int. Cl.²** **F41C 27/04**

[58] **Field of Search** 42/90

[56] **References Cited**

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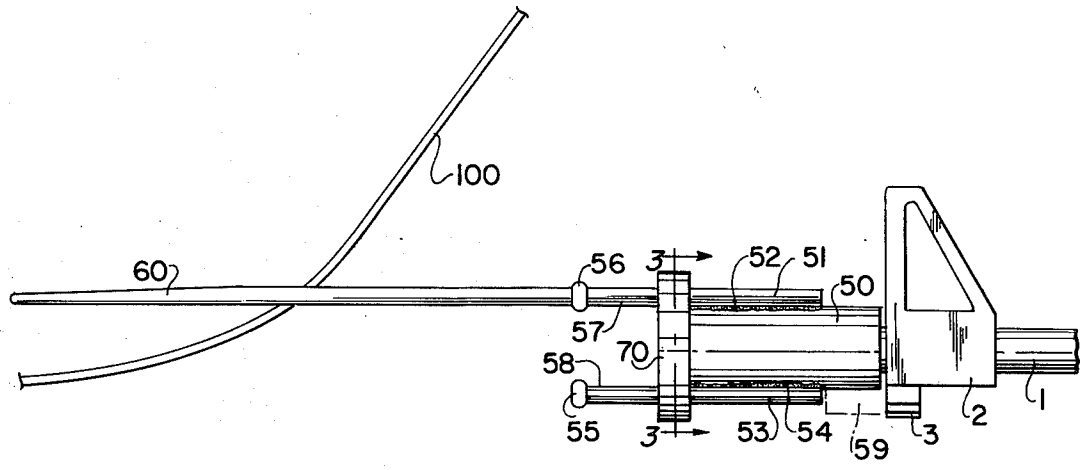
Primary Examiner—Benjamin A. Borchelt

Assistant Examiner—C. T. Jordan

[57] **ABSTRACT**

A shield for use with ballistic cutting implements used on firearms. The shield deflects particles which might endanger the user. The shield may also serve as a hand guard when the implement is used off the firearm.

9 Claims, 7 Drawing Figures



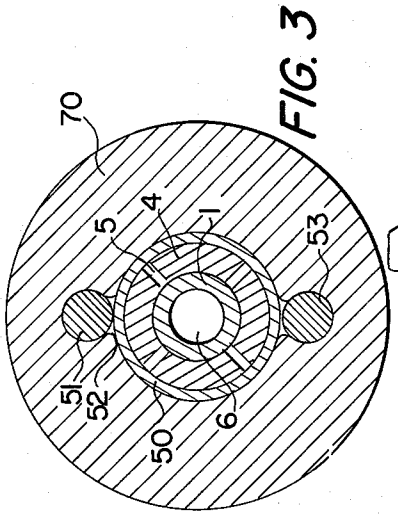


FIG. 3

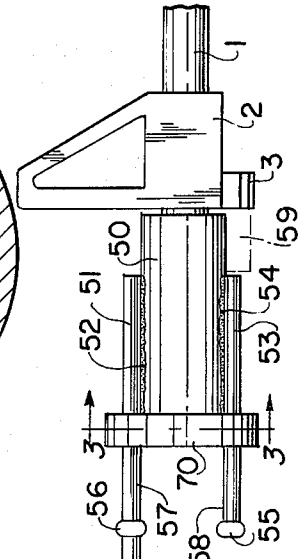


FIG. 2

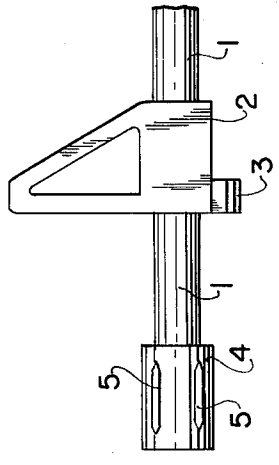


FIG. 1

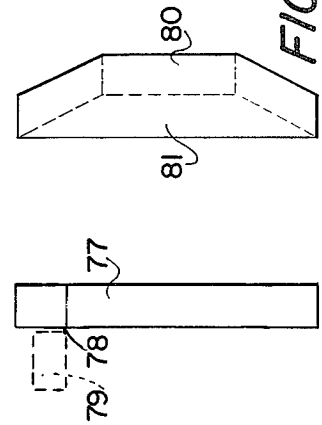


FIG. 7

FIG. 6

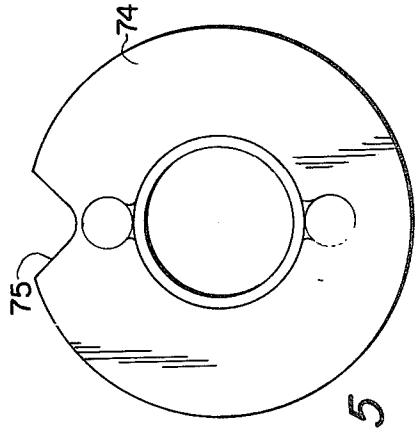


FIG. 5

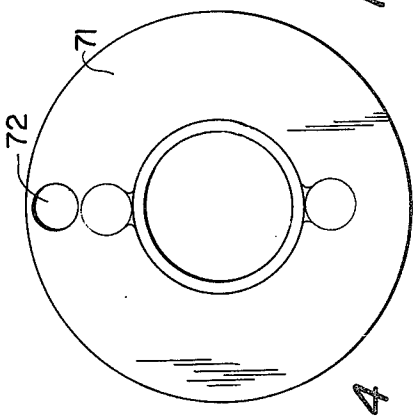


FIG. 4

SHIELD FOR BALLISTIC CUTTERS

This invention comprises a shield for use with ballistic cutting implements of the type which are mounted on the muzzle of a firearm, for cutting wire or other material by discharging a bullet. One type of ballistic cutter is described and illustrated herein, but the invention is not limited to use with any particular implement or firearm. The invention may be put into practice with various types of ballistic cutting implements differing from that shown.

In using a ballistic cutter with a modern rifle firing the U.S. **5.56** × 45 mm military cartridge, it has been found that the bullet will break up when some types of obstacle material are cut. Whether this will happen with all types of material is not yet known, but the fact that it occurs sometimes indicates a possible hazard to the user, and to persons nearby.

In consideration of the above described situation, the principal object of this invention is to provide a shield for use on a ballistic cutting implement.

Another object is to make such a shield which will be simple and economical to fabricate.

These and other objects of the present invention will be apparent upon reference to the following specification, taken in connection with the accompanying drawings, wherein:

FIG. **1** is a side elevation of the muzzle portion of a typical modern military rifle.

FIG. **2** is a side elevation of an embodiment of this invention in a ballistic cutting implement installed on the muzzle of a typical modern military rifle.

FIG. **3** is a transverse section taken in the plane indicated by line **3—3** on FIG. **2.**

FIG. **4** is a view of a shield having a hole through which the firearm can be aimed.

FIG. **5** is a view of a shield having a notch, through which the firearm can be aimed.

FIG. **6** is a view of a shield having a folding portion.

FIG. **7** is a view of a shield having a concave, or dished, shape.

Referring now to the drawings in detail, FIG. **1** shows the front or muzzle portion of a typical military rifle, the barrel of which is indicated by numeral **1.** Also shown are a sight bracket **2,** a bayonet lug **3,** and a flash suppressor **4,** which has longitudinal slots **5.** The present invention is not shown in FIG. **1,** which simply shows one type of rifle muzzle on which a ballistic cutter might be mounted.

FIGS. **2** and **3** show an embodiment of this invention in a ballistic cutting implement mounted on the same type of rifle muzzle as is shown in FIG. **1.** The cutter has a sleeve or housing **50** which encompasses flash suppressor **4.** A latch **59** is indicated (but not shown) for retaining sleeve **50** against bayonet lug **3.**

Fixed to sleeve **50,** as by weld **52** is shaft **51.** Also fixed to sleeve **50,** as by weld **54** is windless bar **53.** Bar **53** terminates in an enlarged portion **55.** A similar enlarged portion **56** is formed on shaft **51.** That portion of bar **53** indicated by **58** and that portion of shaft **51** indicated by numeral **57** constitute windlassing lugs to engage the material to be cut while a bullet is discharged. In the disclosed embodiment shaft **51** is extended to serve as a bayonet **60,** which is shown in FIG. **2** resting on a strand of wire **100,** to be cut. Also shown in FIGS. **2** and **3** is a shield **70** which completely encompasses the cutter in a plane transverse to the axis of the bore of the firearm. The shield is located near the front of sleeve **50** and behind the windlassing lugs, it being understood that front indicates the direction in which a bullet discharged from the firearm will travel. It will therefore be apparent that the shield will be interposed between the user, who will be to the rear, holding the firearm, and the cutting operation, which takes place in the area between the windlassing lugs, which are indicated by numerals **57** and **58.**

The shield may be made of any suitable material, such as steel. It may be made integral with the sleeve, or may be detachable. It may also be made with a dished or concave portion **81,** as shown on shield **80** in FIG. **7.** Dished portion **81** could be installed either toward the front or the rear of the firearm, depending on ballistic effects and the degree of protection required.

In some instances, the shield might be so large as to interfere with normal use of the rifle sights when firing. One solution to this difficulty would be to make a transparent shield. Another solution would be to make a shield like **71** in FIG. **4** which has an aiming hole **72,** or like shield **74** in FIG. **5** which has an aiming notch **75.** Still another method would be to have a portion of the shield fold away from the line of sight as in FIG. **6,** where shield **77** has a top portion which can fold to the position indicated by the broken lines and numeral **79,** while **78** indicates a hinge.

When the implement shown is dismounted from the firearm it may be used as a bayonet and the shield then serves as a hand guard.

When the implement is mounted on a firearm and used for ballistic cutting, a strand of material to be cut is engaged by the windlassing lugs, and the firearm is rotated about its longitudinal axis, thus tensioning the strand. A bullet is then discharged to cut the strand which is alined with the bore of the firearm. The shield is provided to prevent any portions of the bullet or the strand from traveling in the direction of the shooter, or persons close to him. When a bullet traveling at a high velocity strikes an object such as a strand of barbed tape, some particles of the bullet, the strand, or both, may be projected at considerable velocities in random directions. The shield will deflect any traveling to the rear.

What I claim is:

1. In a ballistic cutting implement for mounting on a muzzle of a firearm, shield means positionally adapted for deflecting solid particles moving generally toward the rear of said firearm, said shield means having a portion adapted for folding.

2. A ballistic cutting implement as set forth in claim **1** further characterized by said shield means having an opening on the line of sight of said firearm.

3. A ballistic cutting implement as set forth in claim **1** further characterized by said shield means being transparent.

4. A ballistic cutting implement as set forth in claim **1** further characterized by bayonet means on said implement, and by said shield means being positionally adapted to serve as a hand guard of said implement when said implement is used as a hand bayonet.

5. A ballistic cutting implement comprising: a housing adapted to be fixed on a muzzle of a firearm with the longitudinal axis of said firearm substantially coincident with one axis of said housing; a first lug affixed to said housing with one axis of said lug substantially parallel to but not coincident with said longitudinal

axis, said lug being positionally adapted for engagement with a strand to be cut; a second lug affixed to said housing with one axis of said second lug substantially parallel to but not coincident with said longitudinal axis, said second lug being positionally adapted for engagement with a strand to be cut, and the respective said axes of said first lug, said second lug, and said firearm being positioned in the same plane; detent means on at least one said lug positionally adapted for maintaining the engagement of said lug with said strand; and shield means positionally adapted for impeding particles deflected toward the rear of said firearm when material is cut ballistically.

6. A ballistic cutting implement as set forth in claim 5 further characterized by said shield means completely encompassing said implement in a plane transverse to the longitudinal axis of said firearm.

7. A ballistic cutting implement as set forth in claim 5 further characterized by said shield means being integral with said implement.

8. A ballistic cutting implement as set forth in claim 5 further characterized by said shield means being removable from said implement.

9. A ballistic cutting implement as set forth in claim 5 further characterized by said shield means being concave.

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