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DeSomma et al.(10) **Pub. No.: US 2015/0198409 A1**(43) **Pub. Date: Jul. 16, 2015**(54) **HAND GUARD WITH THREE DIMENSIONAL
END PROFILE****Publication Classification**(71) Applicant: **Patriot Ordnance Factory, Inc.,**
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Phoenix, AZ (US)(21) Appl. No.: **14/596,018**(22) Filed: **Jan. 13, 2015****Related U.S. Application Data**(60) Provisional application No. 61/926,789, filed on Jan.
13, 2014.(51) **Int. Cl.****F41C 23/16** (2006.01)**F41A 23/08** (2006.01)(52) **U.S. Cl.**CPC **F41C 23/16** (2013.01); **F41A 23/08**
(2013.01)

(57)

ABSTRACT

A semi-automatic or automatic firearm comprising a hand guard that includes a three dimensional end profile. The three dimensional end profile can depict subject matter related to sporting, outdoors, military, and hunting-related interests, such as the head and face of a warthog or peccary. The firearm can also include a bipod which includes feet configured and shaped to resemble animal feet, such as the hooves of a warthog or peccary.

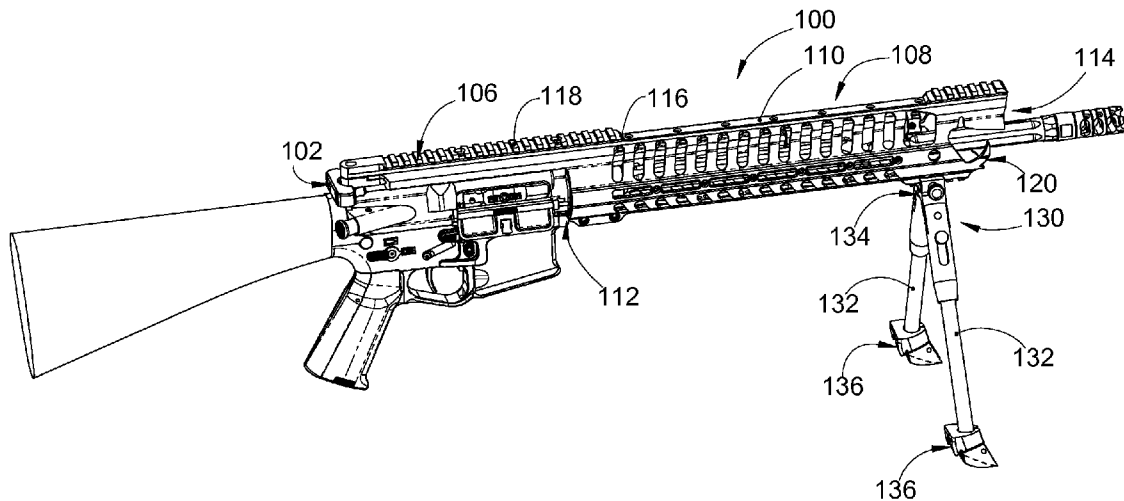
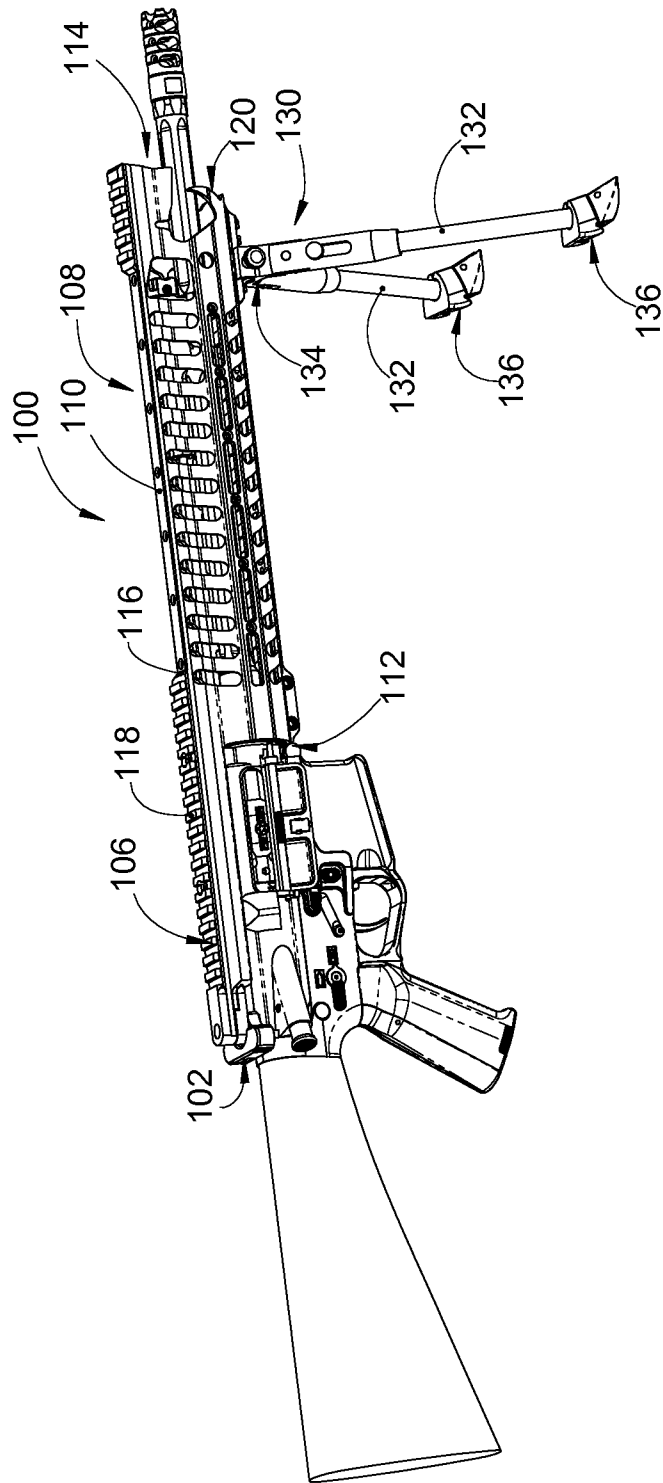


Figure 1



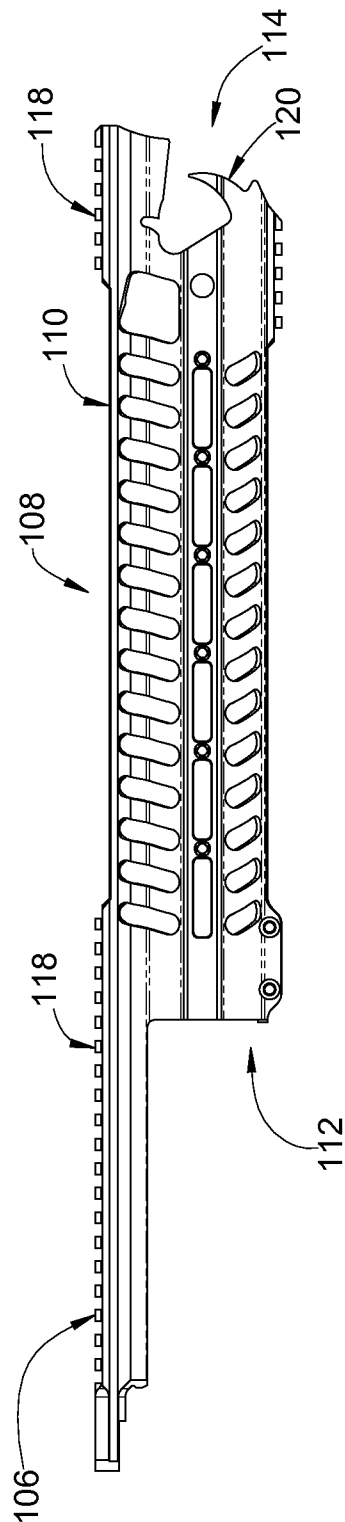


Figure 2A

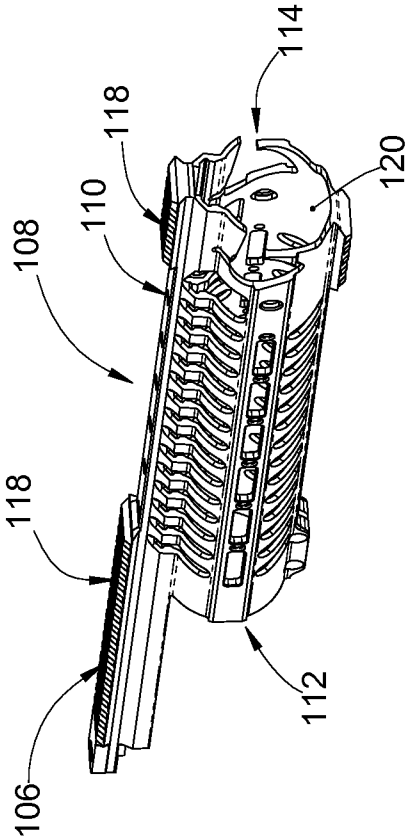


Figure 2B

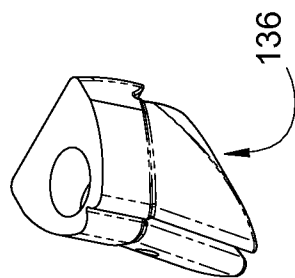


Figure 3

HAND GUARD WITH THREE DIMENSIONAL END PROFILE

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of and priority to U.S. Ser. No. 61/926,789, entitled “HAND GUARD WITH THREE DIMENSIONAL END PROFILE” filed on Jan. 13, 2014, which is incorporated herein by reference in its entirety for any purpose.

FIELD OF INVENTION

[0002] This invention relates to firearms. More particularly, the present invention relates to firearms having a hand guard with a three dimensional profile located at the firing end.

BACKGROUND OF THE INVENTION

[0003] Firearms such as AR10, AR15 or M16 type firearms frequently utilize accessories to personalize and customize the appearance and performance of the firearm. For example, various hand guards can be positioned concentrically around the barrel of such rifles to provide a suitable grip.

SUMMARY

[0004] In various embodiments, a firearm may comprise a hand guard and a three dimensional end profile. The hand guard may comprise a hollow cylindrical body having a breach end and receiver end. The three dimensional end profile may be located at and/or disposed on the breach end of the body of the hand guard. The three dimensional end profile may comprise a depiction of a head of a warthog or peccary.

[0005] In various embodiments, a firearm may comprise a firearm and a bipod. The bipod may be coupled to the firearm body. The bipod may comprise at least one foot. The at least one foot may comprise a depiction of a hoof of an animal.

[0006] The forgoing features and elements may be combined in various combinations without exclusivity, unless expressly indicated herein otherwise. These features and elements as well as the operation of the disclosed embodiments will become more apparent in light of the following description and accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] The subject matter of the present disclosure is particularly pointed out and distinctly claimed in the concluding portion of the specification. A more complete understanding of the present disclosure, however, may best be obtained by referring to the detailed description and claims when considered in connection with the drawing figures, wherein like numerals denote like elements.

[0008] FIG. 1 is a side view of a firearm having a hand guard in accordance with the present disclosure;

[0009] FIGS. 2A and 2B are side and perspective views, respectively, of a firearm having a hand guard in accordance with the present disclosure; and

[0010] FIG. 3 is a perspective view of a foot of a bipod in accordance with the present disclosure.

DETAILED DESCRIPTION

[0011] Persons skilled in the art will readily appreciate that various aspects of the present disclosure can be realized by any number of methods and apparatuses configured to per-

form the intended functions. Stated differently, other methods and apparatuses can be incorporated herein to perform the intended functions. It should also be noted that the accompanying drawing figures referred to herein are not all drawn to scale, but can be exaggerated to illustrate various aspects of the present disclosure, and in that regard, the drawing figures should not be construed as limiting.

[0012] Furthermore, any reference to singular includes plural embodiments, and any reference to more than one component or step may include a singular embodiment or step. Also, any reference to attached, fixed, connected or the like may include permanent, removable, temporary, partial, full and/or any other possible attachment option. Additionally, any reference to without contact (or similar phrases) may also include reduced contact or minimal contact.

[0013] Different cross-hatching and/or surface shading may be used throughout the figures to denote different parts but not necessarily to denote the same or different materials.

[0014] FIG. 1 illustrates an exemplary firearm **100** having a hand guard **108**. In various embodiments firearm **100** comprises an auto-loading rifle of the AR10, AR15 or M16 type. Hand guard **108** can be coupled to firearm **100** by any suitable means and/or structure including, for example, attaching hand guard **108** to an upper receiver assembly **102** of firearm **100** through temporary, semi-permanent, and/or permanent means. For example, hand guard **108** can be attached to upper receiver assembly **102** by one or more fastening screws **106**. Any manner of coupling hand guard **108** with a firearm is within the scope of the present disclosure.

[0015] With reference to FIGS. 2A and 2B, hand guard **108** can comprise, for example, a hollow, generally cylindrical body **110** having a receiver end **112** and a breach end **114**. In various embodiments, body **110** can comprise a metal capable of providing a sufficiently cool surface suitable for contact by the operator of the firearm, yet strong enough to sustain incidental impact. Further, the material of body **110** can comprise a metal that is lightweight. For example, body **110** can comprise an extruded aluminum.

[0016] In various embodiments, body **110** comprises at least one rail segment **118**. For example, body **110** can comprise multiple rail segments **118**, including rail segments oriented parallel to a longitudinal axis extending through body **110** and positioned approximately 90 degrees from each other. Stated another way, body **110** can comprise rail segments on the top, bottom, and/or sides of hand guard **108**. In various embodiments, hand rail segments **118** can be coupled to hand guard **108** through temporary, semi-permanent, and/or permanent means. Any number and configuration of rail segments **118** relative to body **110** is within the scope of the present disclosure.

[0017] Body **110** can further comprise, for example, one or more voids **116**. Voids **116** can comprise a mass of material removed or absent from body **110** in a general shape, such as an oval or rectangle. In various embodiments, a plurality of voids **116** of the same general shape can be oriented generally parallel to each other along body **110** to reduce the total weight of hand guard **108**. Further, voids **116** having different shapes and/or configurations can be used in conjunction. For example, body **110** can comprise a plurality of voids **116** having a first shape and voids **116** having a second shape. The use of any shape, size, or configuration of voids in body **110** is within the scope of the present disclosure.

[0018] In various embodiments, hand guard **108** comprises a three dimensional end profile **120**. For example, three

dimensional end profile **120** can be located at breach end **114** of body **110**. Three dimensional end profile **120** can comprise, for example, a shape formed by the removal or absence of material in body **110**. In various embodiments, three dimensional end profile **120** is formed by removing material (by, for example, milling and/or routing) in a desired shape and configuration from the breach end **114** of body **110**. For example, three dimensional end profile **120** can comprise one or more voids shaped such that, when viewed together, an intended image is presented.

[0019] Three dimensional end profile **120** can comprise, for example, a shape that, when viewed from a particular perspective, represents subject matter related to sporting, outdoors, military, and hunting-related interests. For example, three dimensional end profile **120** can resemble an animal, such as a hog, peccary, eagle, or other animal. With continued reference to FIGS. 2A and 2B, exemplary three dimensional end profile **120** resembles a warthog in that two upward, pointed protrusions suggest the tusks of a hog, and the top and uppermost sides of body **110** at breach end **114** suggests the snout of a hog. In other embodiments, three dimensional end profile **120** can resemble a distinct aspect of a military vehicle, such as the nose of a military aircraft, e.g., a P-51 Mustang. Although illustrated and described with reference to particular examples, any three dimensional end profile **120** of hand guide **108** that represents a three dimensional depiction of a desired image is within the scope of the present disclosure.

[0020] In various embodiments, firearm **100** further comprises a bipod **130**. Bipod **130** can be removably attached to firearm **100** to provide improved stability and a superior firing position to the operator. Bipod **130** can comprise, for example, two legs **132** coupled to a mount **134**. For example, bipod **130** can be temporarily or semi-permanently mounted to hand guard **108** at or near breach end **114**. In such embodiments, mount **134** of bipod **130** can be configured to detachably couple to a rail segment **118**.

[0021] Bipod **130** can further comprise one or more feet **136**. For example, one foot **136** can be coupled to each leg **132**. In various embodiments, feet **136** are configured to provide improved stability to firearm **100** by providing a larger contact area with a surface. Foot **136** can, for example, also be configured such that, when viewed from a particular perspective, the overall shape of foot **136** depicts subject matter related to sporting, outdoors, military, and hunting-related interests. For example, as illustrated in FIGS. 1 and 3, feet **136** can resemble the feet and/or hooves of an animal, such as a warthog or peccary. Although illustrated and described with reference to particular examples, any foot **136** of bipod **130** that depicts a desired image is within the scope of the present disclosure.

[0022] It will be apparent to those skilled in the art, after reading the present disclosure that various modifications and variations can be made in the present disclosure without departing from the spirit or scope of the disclosure. Thus, it is intended that the present disclosure cover the modifications and variations of this disclosure provided they come within the scope of the appended claims and their equivalents.

[0023] Benefits, other advantages, and solutions to problems have been described herein with regard to specific embodiments. Furthermore, the connecting lines shown in the various figures contained herein are intended to represent exemplary functional relationships and/or physical couplings

between the various elements. It should be noted that many alternative or additional functional relationships or physical connections may be present in a practical system. However, the benefits, advantages, solutions to problems, and any elements that may cause any benefit, advantage, or solution to occur or become more pronounced are not to be construed as critical, required, or essential features or elements of the inventions. The scope of the inventions is accordingly to be limited by nothing other than the appended claims, in which reference to an element in the singular is not intended to mean "one and only one" unless explicitly so stated, but rather "one or more." Moreover, where a phrase similar to "at least one of A, B, or C" is used in the claims, it is intended that the phrase be interpreted to mean that A alone may be present in an embodiment, B alone may be present in an embodiment, C alone may be present in an embodiment, or that any combination of the elements A, B and C may be present in a single embodiment; for example, A and B, A and C, B and C, or A and B and C.

[0024] Systems, methods and apparatus are provided herein. In the detailed description herein, references to "one embodiment", "an embodiment", "various embodiments", etc., indicate that the embodiment described may include a particular feature, structure, or characteristic, but every embodiment may not necessarily include the particular feature, structure, or characteristic. Moreover, such phrases are not necessarily referring to the same embodiment. Further, when a particular feature, structure, or characteristic is described in connection with an embodiment, it is submitted that it is within the knowledge of one skilled in the art to affect such feature, structure, or characteristic in connection with other embodiments whether or not explicitly described. After reading the description, it will be apparent to one skilled in the relevant art(s) how to implement the disclosure in alternative embodiments.

[0025] Furthermore, no element, component, or method step in the present disclosure is intended to be dedicated to the public regardless of whether the element, component, or method step is explicitly recited in the claims. No claim element herein is to be construed under the provisions of 35 U.S.C. 112(f), unless the element is expressly recited using the phrase "means for." As used herein, the terms "comprises", "comprising", or any other variation thereof, are intended to cover a non-exclusive inclusion, such that a process, method, article, or apparatus that comprises a list of elements does not include only those elements but may include other elements not expressly listed or inherent to such process, method, article, or apparatus.

1. A firearm comprising:

- a hand guard comprising a hollow cylindrical body having a breach end and receiver end; and
- a three dimensional end profile located at the breach end of the body of the hand guard.

2. The firearm of claim 1, wherein the three dimensional end profile comprises a depiction of a head of a warthog or peccary.

3. A firearm comprising:

- a firearm body; and
- a bipod coupled to the firearm body, wherein the bipod comprises at least one foot, and wherein the at least one foot comprises a depiction of a hoof of an animal.

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