



US 20170356711A1

(19) **United States**(12) **Patent Application Publication****Lessard et al.**(10) **Pub. No.: US 2017/0356711 A1**(43) **Pub. Date: Dec. 14, 2017**(54) **CHAMBER FLAG AND SERVICE TOOL**(52) **U.S. Cl.**CPC **F41A 17/44** (2013.01)(71) Applicant: **Q, LLC**, Portsmouth, NH (US)(72) Inventors: **Ethan Lessard**, East Kingston, NH (US); **Kevin Brittingham**, Portsmouth, NH (US)

(57)

ABSTRACT

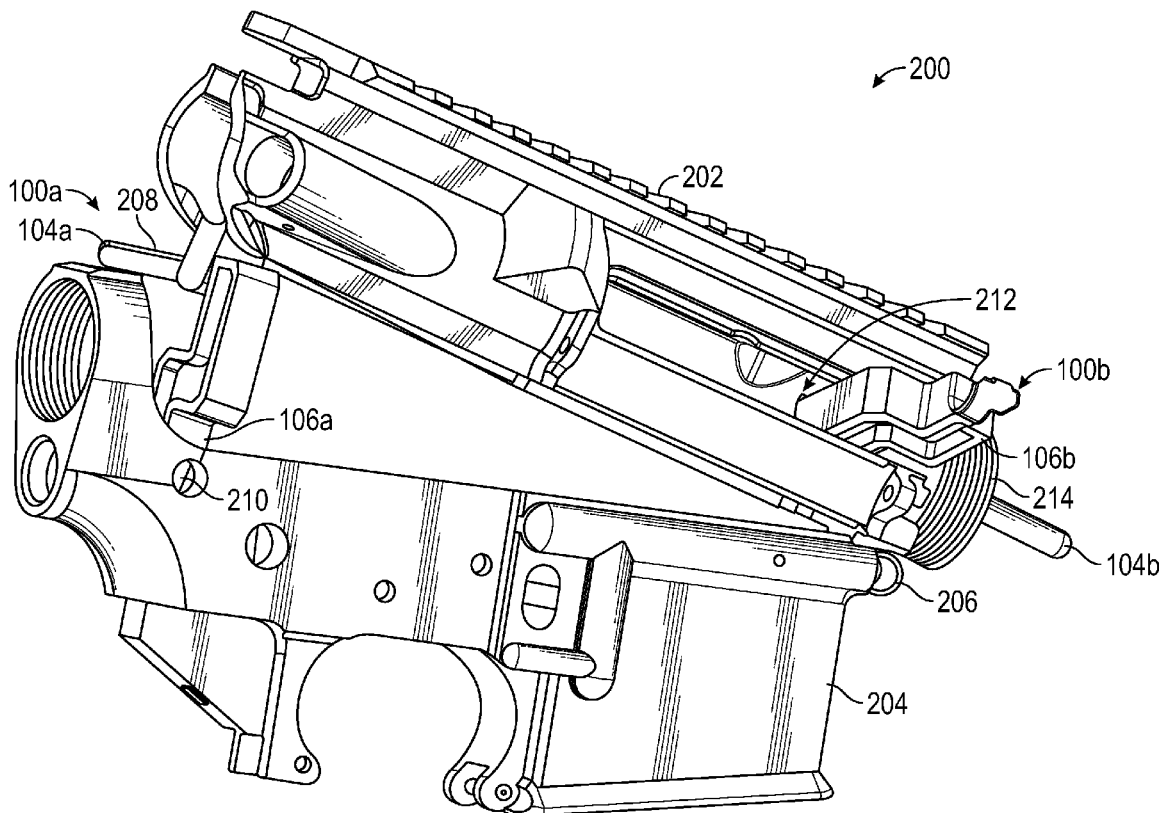
The disclosure relates to a chamber flag with a substantially Z-shaped body having a central portion and a rod extending from the body; a chamber flag having a body defining an opening having an opening axis, and a rod extending from the body and having a rod axis substantially parallel to the opening axis, wherein the chamber flag is configured to support upper and lower receivers of a firearm at a fixed angle; and a method of temporarily securing a position of upper and lower receivers of a firearm by inserting a rod of a chamber flag into a pin channel of the upper receiver, inserting a portion of a body of the chamber flag into the lower receiver, wherein the lower receiver defines a pin opening, and inserting a pin through the pin opening and an opening defined by the body of the chamber flag.

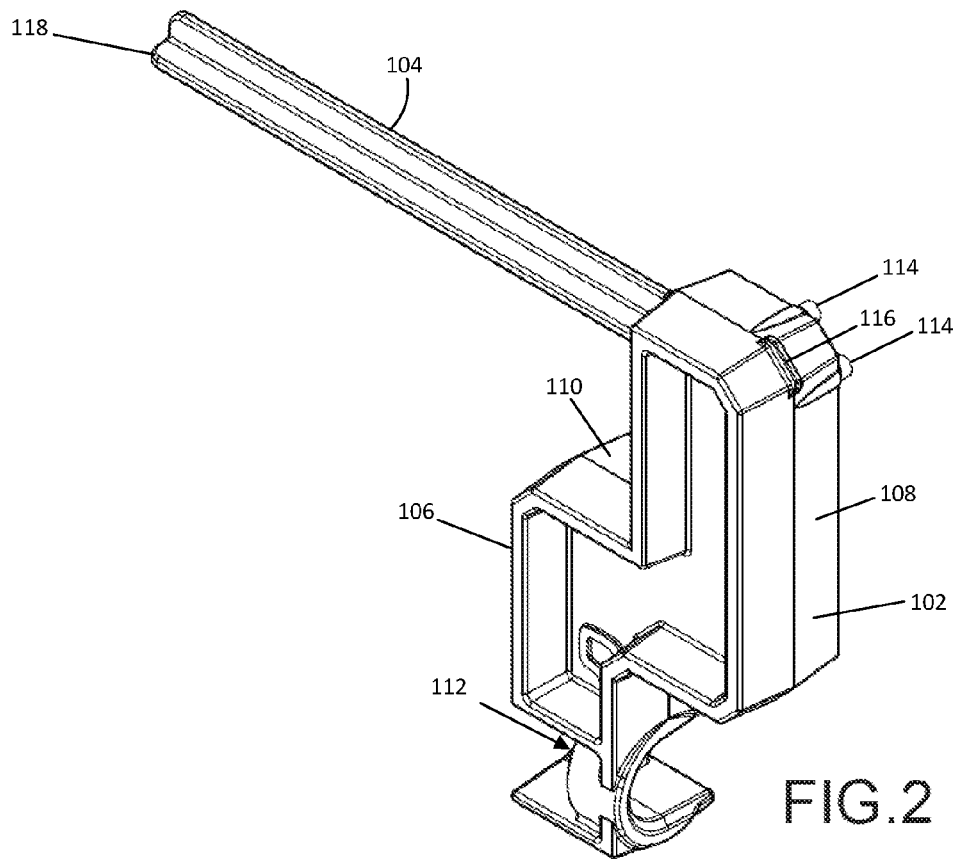
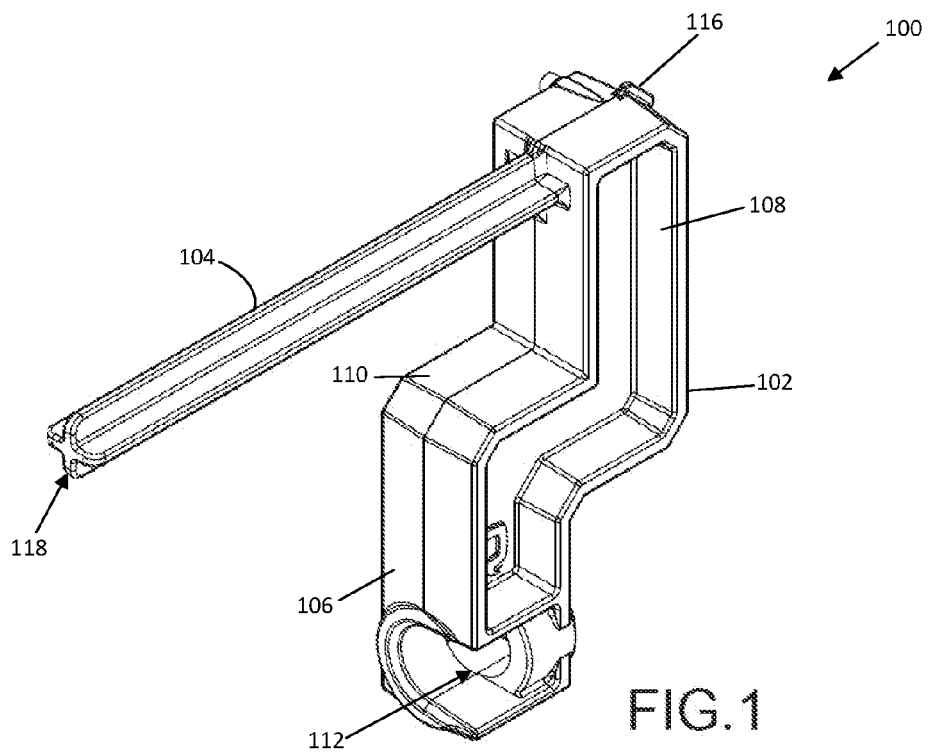
(21) Appl. No.: **15/460,965**(22) Filed: **Mar. 16, 2017****Related U.S. Application Data**

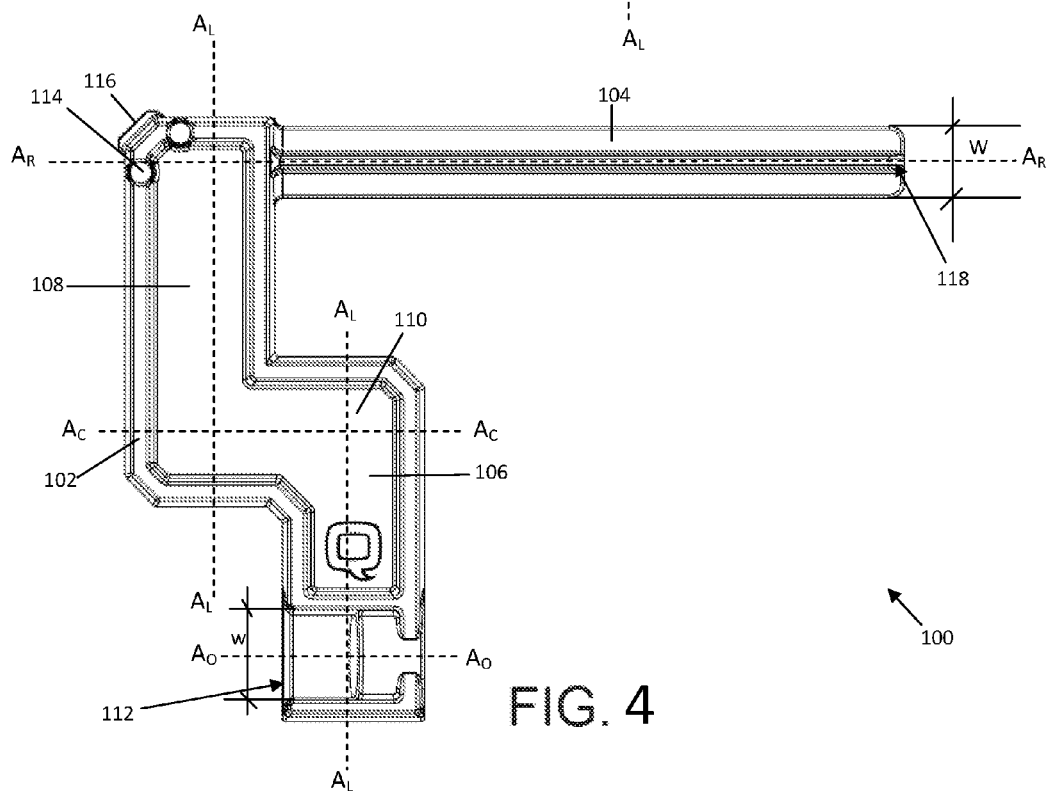
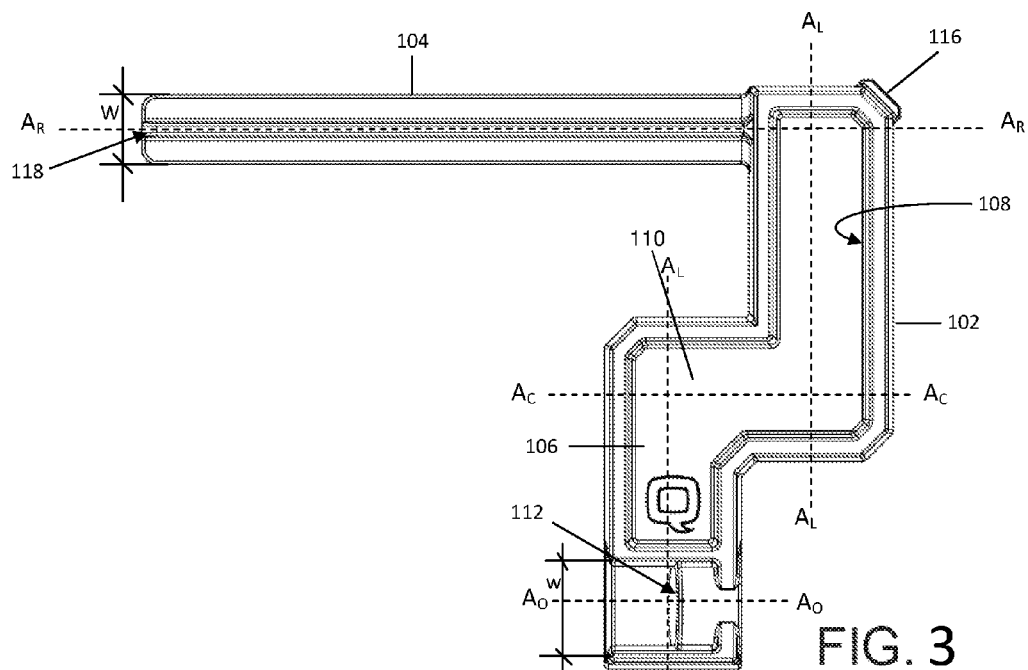
(60) Provisional application No. 62/349,549, filed on Jun. 13, 2016.

Publication Classification(51) **Int. Cl.****F41A 17/44**

(2006.01)







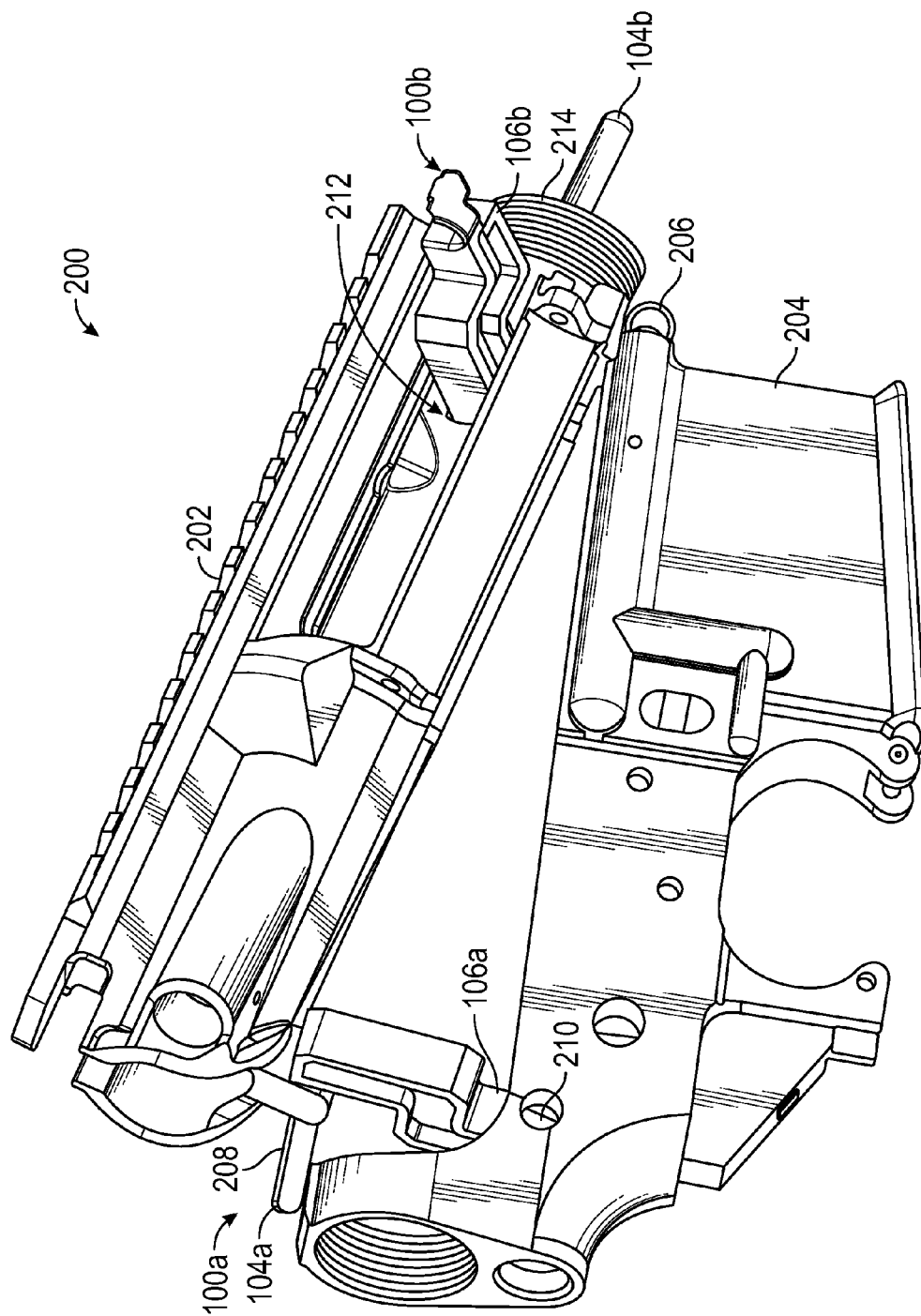


FIG. 5A

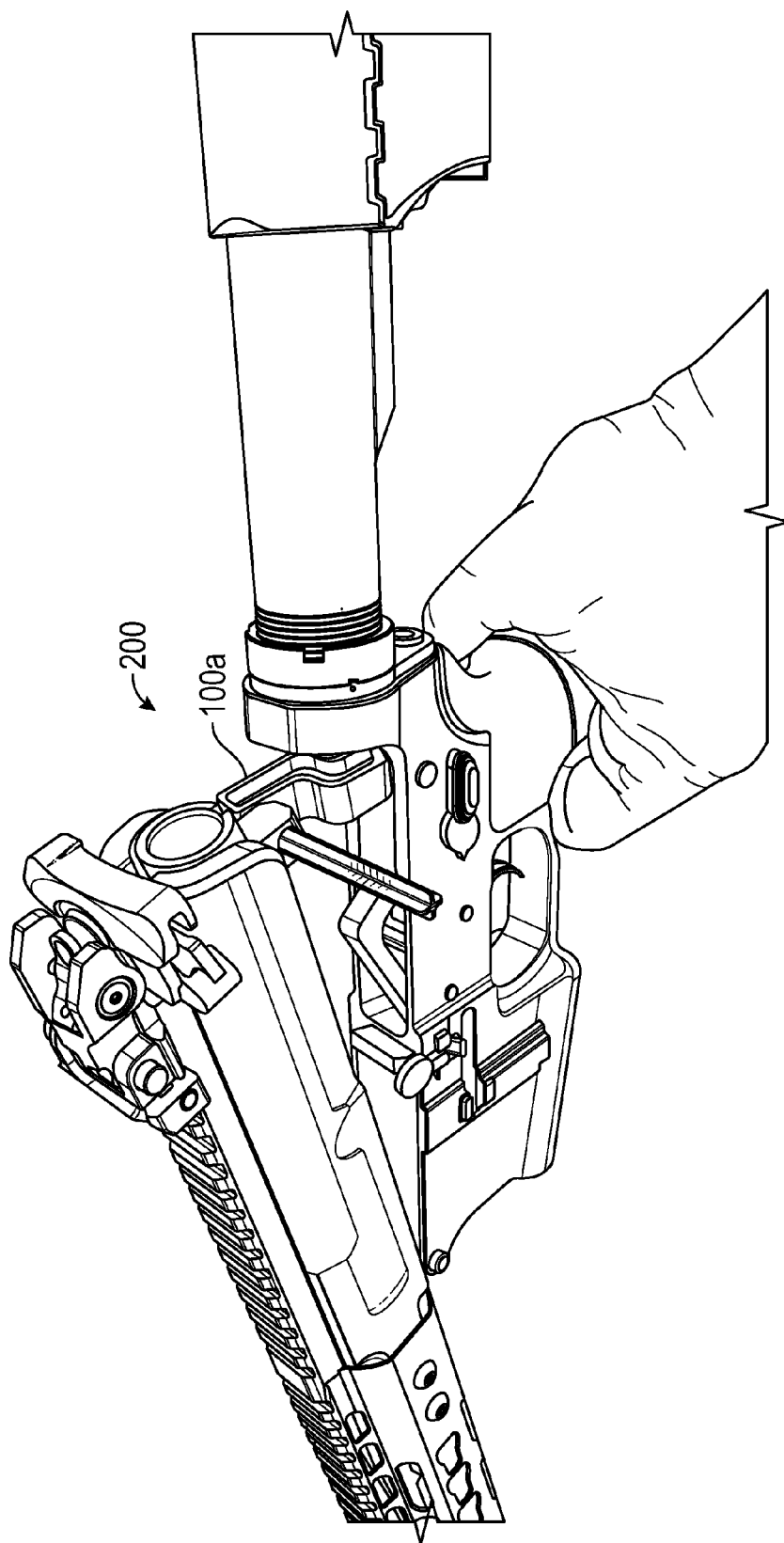


FIG. 5B

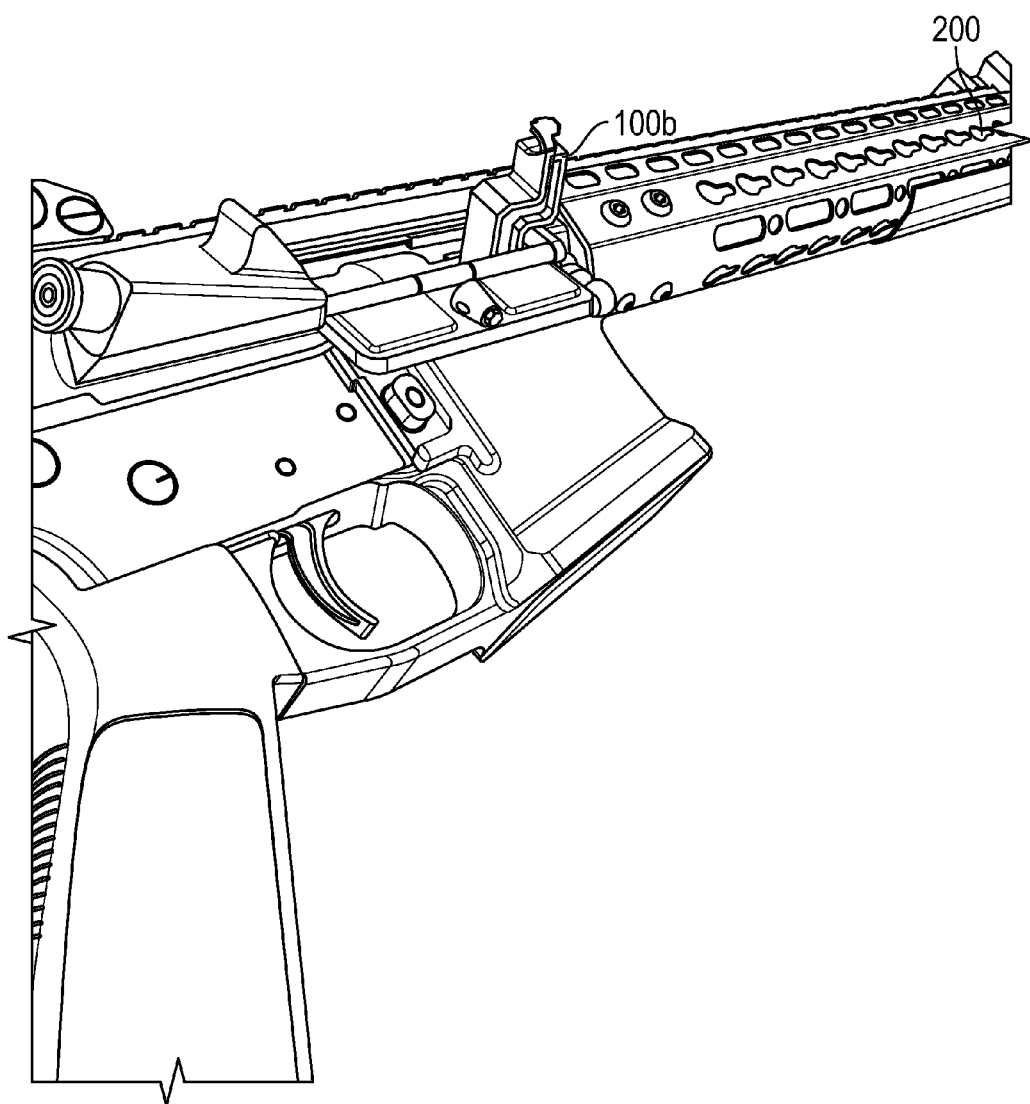


FIG. 5C

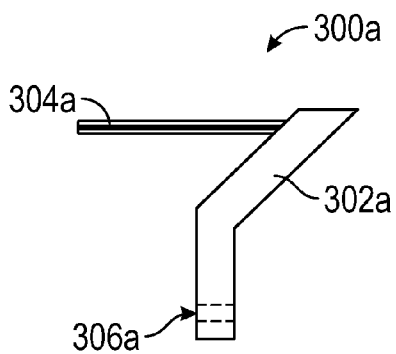


FIG. 6A

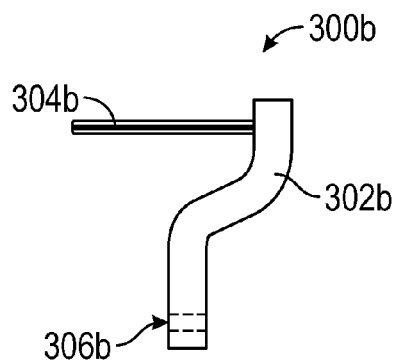


FIG. 6B

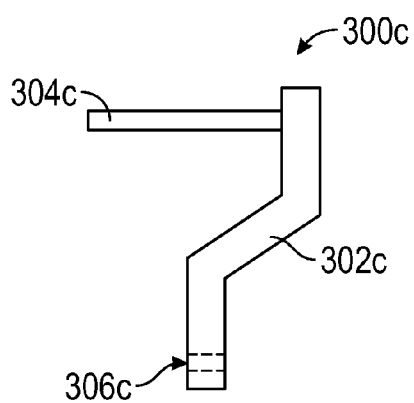


FIG. 6C

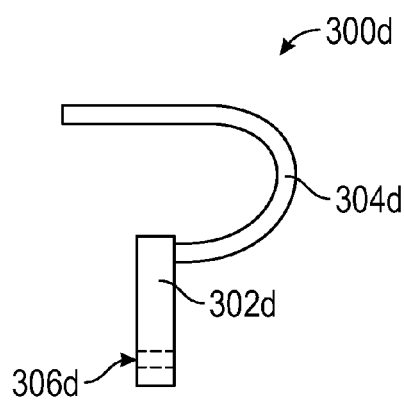


FIG. 6D

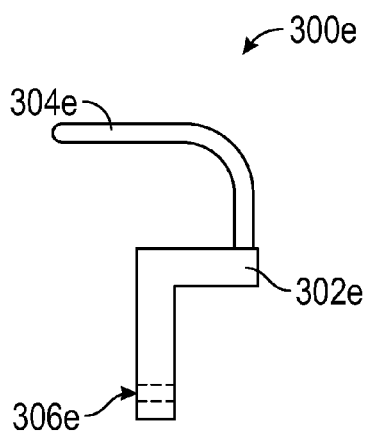


FIG. 6E

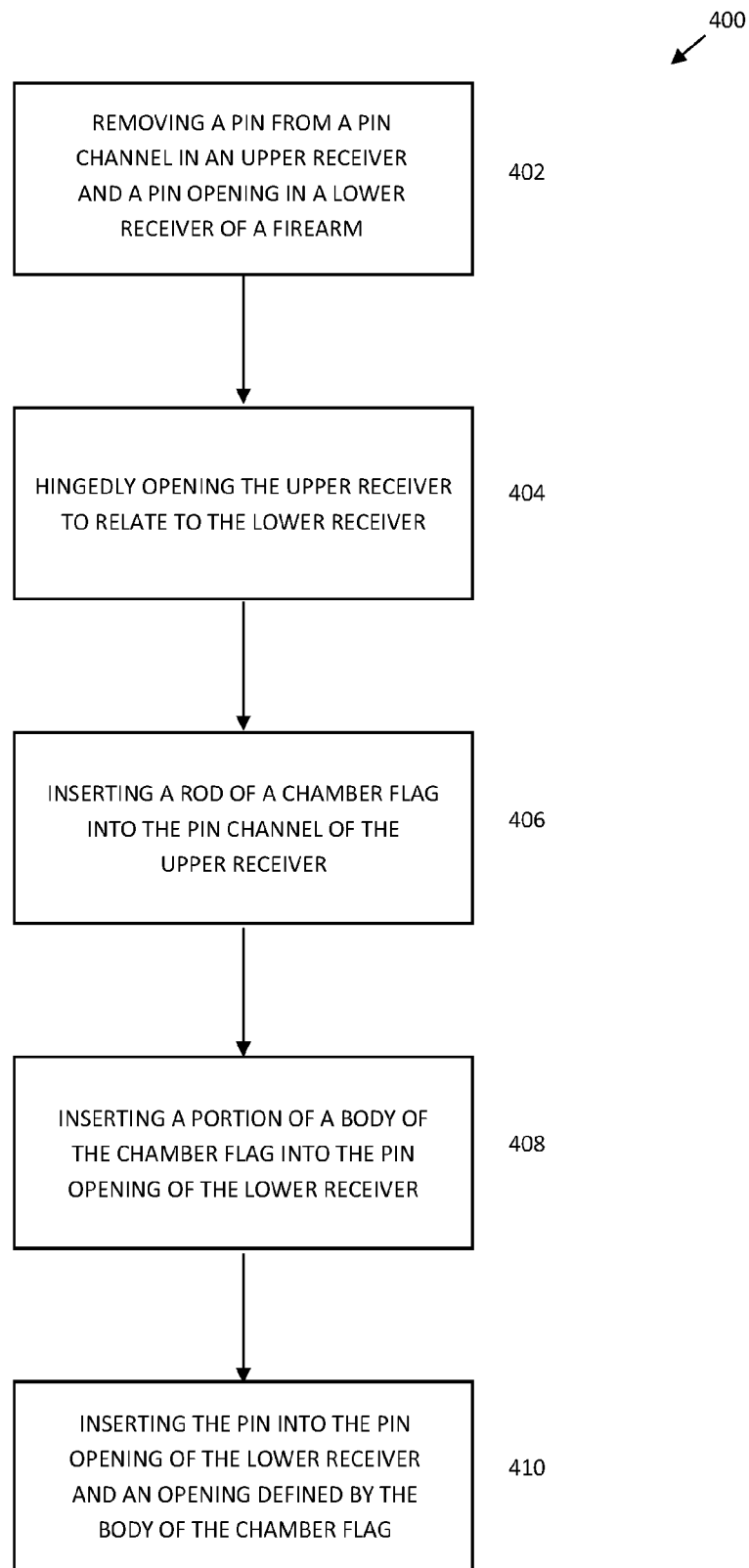


FIG. 7

CHAMBER FLAG AND SERVICE TOOL

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of priority to U.S. Provisional Patent Application No. 62/349,549 filed Jun. 13, 2016, the disclosure of which is hereby incorporated by reference in its entirety.

INTRODUCTION

[0002] Chamber flags are inserted into a chamber of a firearm to prevent inadvertent firing thereof and to serve as a visual confirmation that the firearm is inoperable. Often, chamber flags are required during shipping of the firearm and at shooting ranges and other facilities so as to prevent inadvertent discharge of the firearm when not in active use.

SUMMARY

[0003] In one aspect, the disclosed technology relates to a chamber flag having: a substantially Z-shaped body having a central portion, wherein the substantially Z-shaped body defines an opening therethrough; and a rod extending from the substantially Z-shaped body. In an embodiment, the substantially Z-shaped body includes a first leg extending from the central portion and a second leg extending from the central portion in a direction substantially opposite to the first leg. In another embodiment, the rod is substantially parallel to the central portion of the substantially Z-shaped body. In yet another embodiment, the first leg and the second leg are substantially orthogonal to the central portion. In still another embodiment, the first leg defines the opening and the rod extends from the second leg.

[0004] In another embodiment of the above aspect, the technology relates to a maximum outer width of the rod substantially similar to a minimum inner width of the opening. In an embodiment, a maximum outer width of the rod is less than a minimum inner width of the opening. In another embodiment, a tool extending from the chamber flag. In yet another embodiment, the tool has at least one of a spanner and a screwdriver.

[0005] In another aspect, the technology relates to a chamber flag having: a body defining an opening having an opening axis; and a rod extending from the body and having a rod axis substantially parallel to the opening axis, wherein the chamber flag is configured to support an upper receiver and a lower receiver of a rifle at a fixed angle when the rod is connected to the upper receiver and when the body is inserted into the lower receiver. In one embodiment, the opening in the body is configured to align with an opening defined by the lower receiver. In another embodiment, the body includes a central portion, a first leg, and second leg, wherein the first leg extends from the central portion and the second leg extends from the central portion in a direction substantially opposite to the first leg. In another embodiment, the body includes a first leg that extends in a direction substantially orthogonal to at least a portion of the rod. In another embodiment, the first leg defines the opening and the rod extends from the second leg. In another embodiment, a maximum outer width of the rod is less than or substantially similar to a minimum inner width of the opening. In another embodiment, at least one tool extends from the chamber flag. In another embodiment, the tool includes a spanner and/or a screwdriver.

[0006] In another aspect, the technology relates to a method of temporarily securing a position of an upper receiver of a firearm to a lower receiver of the firearm, the method including: inserting a rod of a chamber flag into an eyelet (e.g., pin channel) of the upper receiver; inserting a body of the chamber flag into the lower receiver, wherein the lower receiver defines a pin opening; and inserting a pin through the pin opening of the lower receiver and an opening defined by the body of the chamber flag. In an embodiment, the method further includes the step of removing a pin from the pin channel in the upper receiver before inserting the rod into the pin channel. In another embodiment, the portion of the body of the chamber flag is a first leg that extends in a direction substantially orthogonal to at least a portion of the rod.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] There are shown in the drawings, embodiments which are presently preferred, it being understood, however, that the technology is not limited to the precise arrangements and instrumentalities shown.

[0008] FIG. 1 is a top, front, left side perspective view of an embodiment of a chamber flag of the present disclosure.

[0009] FIG. 2 is a top, rear, right side perspective view of an embodiment of a chamber flag of the present disclosure.

[0010] FIG. 3 is a left side view of an embodiment of a chamber flag of the present disclosure.

[0011] FIG. 4 is a right side view of an embodiment of a chamber flag of the present disclosure.

[0012] FIG. 5A shows an embodiment of a chamber flag of the present disclosure during use with a firearm.

[0013] FIG. 5B shows an embodiment of a chamber flag of the present disclosure during use with a firearm.

[0014] FIG. 5C shows an embodiment of a chamber flag of the present disclosure during use with a firearm.

[0015] FIG. 6A shows a configuration of an embodiment of a chamber flag of the present disclosure.

[0016] FIG. 6B shows a configuration of an embodiment of a chamber flag of the present disclosure.

[0017] FIG. 6C shows a configuration of an embodiment of a chamber flag of the present disclosure.

[0018] FIG. 6D shows a configuration of an embodiment of a chamber flag of the present disclosure.

[0019] FIG. 6E shows a configuration of an embodiment of a chamber flag of the present disclosure.

[0020] FIG. 7 is a flow chart showing a method of using a chamber flag of the present disclosure.

DETAILED DESCRIPTION

[0021] FIGS. 1-4 are various views of a chamber flag 100, and are described concurrently. The chamber flag 100 includes a body 102 and a rod 104 extending therefrom. In the depicted configuration, the body 102 has an offset configuration that is substantially Z-shaped. The substantially Z-shaped body 102 has two legs 106, 108, axes A_L which are offset from and substantially parallel to each other. A central portion 110 has an axis A_C that, in the depicted configuration, is substantially orthogonal to both of legs 106, 108. Other angular relationships are contemplated and other configurations of bodies having offset configurations consistent with the technologies herein are described below.

[0022] The rod 104 extends from the body 102, for example from an end of one of the legs 108. The rod 104

may have an axis A_R that is substantially parallel to the central portion axis A_C , although other angular relationships are contemplated. The rod **104** may have any cross-sectional configuration as required or desired for a particular application. For example, the rod **104** may be cross-shaped, as depicted, or may be round, oval, triangular, square, pentagonal, hexagonal, and so on. Regardless of shape, the rod **104** includes a maximum width W . The maximum width W may be dictated by, e.g., one or more conditions of the use of the chamber flag. In general, the maximum width W is such that the rod **104** may be inserted through a pin channel or eyelet in an upper receiver of a rifle or other firearm, as described in more detail below. The rod **104** has a length L that allows for insertion into a barrel of a rifle, when the chamber flag **100** is inserted to the chamber of the rifle. The length L may be such that the chamber flag is not prone to sliding out of the rifle barrel when inserted therein. The length L may be dictated by the size of the chamber opening and other factors. In at least one embodiment, the length L is 1-27 inches, such as 2, 4, 6, 8, 10, or 12 inches.

[0023] An opening **112** is defined by the body **102**, for example from an end of the other leg **106**. The opening **112** may have an axis A_O that is substantially parallel to the rod axis A_R . Typically, the opening axis A_O is substantially orthogonal to the first leg **106** axis A_L . The opening **112** may have any cross-sectional configuration desired. For example, the opening **112** may be round, oval, triangular, square, pentagonal, hexagonal, and so on. Regardless of shape, the opening **112** is defined by a minimum width w . The minimum width w may be dictated by, e.g., one or more conditions of the use of the chamber flag. In general, the minimum width w is such that the opening **112** may receive a pin extending through a lower receiver of a rifle or other firearm, as described in more detail below. In at least one embodiment, the minimum width w is up to 0.5 inches, such as 0.375 inches or 0.25 inches.

[0024] The chamber flag **100** may be used to separate, at a fixed angle, upper and lower receivers of a rifle for cleaning, servicing, or other purposes. Some embodiments of this configuration are depicted in FIGS. 5A and 5B. As such, there is a relationship between the maximum width W of the rod **104** and the minimum width w of the opening **112**. In most AR-type rifles, the upper receiver is connected to the lower receiver at a forward hinge. When the upper and lower receivers are engaged, a pin is inserted into an opening in the lower receiver and passes through a pin channel or eyelet in the upper receiver, thus holding the upper and lower receivers together such that the rifle is in an operable configuration. As such, the size of the pin of a particular rifle may dictate both the maximum width W of the rod **104** and the minimum width w of the opening **112**. For example, the maximum width W of the rod **104** may be similar in size to, or smaller than, a maximum width of the pin. In this way, the rod **104** may be inserted into the pin channel or eyelet when the upper and lower receivers are hinged into an open position. The leg **106** may then be inserted into the lower receiver, the opening **112** aligned with the opening in the lower receiver, and the pin inserted therethrough. As such, the minimum width w of the opening **112** may be similar in size to, or larger than, the maximum width of the pin. In this way, the opening **112** may receive the pin when the upper and lower receivers are hinged into an open position. As such, in examples, the maximum width W of the rod **104** and the minimum width w of the opening **112** may be substan-

tially the same. In such a configuration, "substantially the same" means that the maximum width W of the rod **104** is such that it would have a close fit with the opening **112**, if inserted therein. In other examples, the maximum width W of the rod **104** is smaller than the minimum width w of the opening **112**.

[0025] In some embodiments, the chamber flag **100** is substantially symmetrical about a plane that includes both the rod axis A_R and the opening axis A_O . As such, the chamber flag **100** can be utilized to hold the upper receiver and lower receiver in an open position whether installed through the pin channel or eyelet from left-to-right or right-to-left.

[0026] The chamber flag **100** may further include integrated therewith one or more tools that may be utilized to service, assemble, clean, or repair a firearm or accessories related thereto (e.g., a sight, scope, mount, or other device). For example, the depicted chamber flag **100** includes two protrusions **114** extending therefrom. These protrusions **114** function as a face spanner for adjusting an optical device or other accessory. In examples, these two protrusions may be 1.8 mm diameter pins. Additionally, the chamber flag **100** may include a screwdriver **116** (e.g., a flat head as depicted in FIG. 2). Both of these tools may be incorporated into the leg **108**, although other tool locations are contemplated (e.g., the leg **106**). In a further example, another screwdriver, e.g., a Phillips head, may be incorporated into an end **118** of the rod **104**. The rod **104** may also include integrated therewith (or secured thereto) a circumferential brush for insertion into the barrel of a rifle for cleaning.

[0027] In some embodiments, a cross-section of the body **102** of the chamber flag **100** (e.g., orthogonal to any axes A_L , A_C of the legs **106**, **108** or the central portion **110**) is in a substantially H-shaped configuration, which helps maintain rigidity of the body **102** while reducing material required for manufacture. The cross-shaped cross-section of the rod **104** is manufactured as such for similar reasons. Of course, entirely solid components may also be utilized.

[0028] FIGS. 5A-5C depict views of a chamber flag **100** during use with a firearm **200**. With regard to FIG. 5A, two chamber flags **100a**, **100b** are depicted in use. Of course, only one chamber flag **100** need be utilized at any given instant on the firearm **200**. Chamber flag **100a** is disposed so as to keep the upper receiver **202** and lower receiver **204** in a fixed position for cleaning or other purposes, as described elsewhere herein. This use of the chamber flag **100a** is also depicted in FIG. 5B. As can be seen, the upper receiver **202** and lower receiver **204** are joined at a hinge **206**. In this way, the rod **104a** may be inserted into a pin channel or eyelet **208** in the upper receiver **202** when the upper receiver **202** and the lower receiver **204** are hinged into an open position. The leg **106a** is inserted into the lower receiver **204**, and the opening (not shown) in the leg **106a** is aligned with an opening in the lower receiver **204** so as to receive a pin **210**. The chamber flag **100b** is utilized as a chamber flag to indicate that the rifle **200** is not in an operable condition. This use is also depicted in FIG. 5C, in which the chamber flag **100b** is inserted into the chamber opening **212** such that the rod **104b** extends down into the barrel **214**. In this position, the chamber flag **100b** is inserted in a forward position but may be pulled rearward by gripping the leg **106b** so as to release the rod **104b** from the barrel **214**.

[0029] FIGS. 6A-6E depict additional offset configurations of chamber flags **300** consistent with the disclosure

herein. These and other offset configurations of the chamber flag allow the chamber flag to also be used as a tool to hold the hinged upper and lower receivers of a rifle at a fixed angle. The chamber flags may be symmetrical in that the rods thereof can be inserted into the upper receiver eyelet from either left-to-right or right-to-left. Each chamber flag 300 includes a body 302 defining an opening 306 therethrough and a rod 304 extending therefrom. With regard to FIG. 6A, the body 302a is substantially V-shaped with a rod 304a extending at an acute angle from the body 302a. The chamber flag 300b of FIG. 6B depicts a curved shape, while the chamber flag 300c depicts a body 302b having a central portion disposed at non-orthogonal angles to the legs. The chamber flag configurations depicted in FIGS. 6B and 6C are fairly similar to those described above in FIGS. 1-4. Chamber flag 300d depicted in FIG. 6D includes a straight body 302d with a U-shaped rod 304d extending therefrom. Chamber flag 300e depicted in FIG. 6E includes an L-shaped body 302e with a curved rod 204e extending therefrom.

[0030] FIG. 7 depicts a method 400 of using a chamber flag to hold upper and lower receivers of a rifle in a fixed hinged position. The method 400 begins at operation 402 with removing a pin from a pin channel in an upper receiver and a pin opening in a lower receiver of a firearm. This allows the upper and lower receivers to be moved relative to each other. Next in operation 404, the upper and lower receivers are hingedly moved relative to each other. Operation 406 then includes inserting a rod of a chamber flag into the pin channel of the upper receiver. Thereafter, operation 408 includes inserting at least a portion of a body of the chamber flag into the pin opening of the lower receiver. To fully secure the position of the upper receiver relative to the lower receiver, operation 410 then requires re-inserting the pin into the pin opening of the lower receiver and an opening defined by the body of the chamber flag. In this fixed position, the rifle may be more easily and more safely cleaned, serviced, and otherwise manipulated.

[0031] The chamber flags described herein may be utilized with a number of different firearms available on the market, for example, AR-15 and AR-10 based rifles. Configurations, sizes, and dimensions may be modified as required or desired to accommodate other rifle types or to accommodate pistols.

[0032] The chamber flag may be manufactured by known techniques using injection molded plastics, such as polyvinyl chloride (PVC), acrylonitrile butadiene styrene (ABS), various grade densities of polyethylene, or other plastics or thermoplastic polymers. Glass-filled plastics, such as 30% glass-filled nylon may be desirable, since they allow a certain degree of deflection under load while still maintaining sufficient strength. Additionally, the chamber flag may be molded of brightly colored materials or painted after manufacture. This increases visibility of the chamber flag during use. The chamber flag may be injection molded as a single piece, including some or all of the components described herein, or the chamber flag may be manufactured in two or more pieces and joined together (e.g., along a plane that includes both the rod axis A_R and the opening axis A_O). For example, the body 102 may be manufactured separately from the rod 104 and the two components may then be joined together after manufacture. Adhesives, mechanical connections, press- or snap-fit connections, and/or combi-

nations thereof can be used to permanently or temporarily connect discrete parts of the chamber flag.

[0033] As used herein, the term “substantially” means being of considerable degree, almost all, or all. For example, a “substantially Z-shaped body” refers to a body that is Z-shaped, or that has a shape that considerably resembles the shape of a Z. As another example, a “substantially similar” measurement, such as a width, refers to a value that is the same or almost the same as another such measurement value.

[0034] While there have been described herein what are to be considered exemplary and preferred embodiments of the present technology, other modifications of the technology will become apparent to those skilled in the art from the teachings herein. The particular methods of manufacture and geometries disclosed herein are exemplary in nature and are not to be considered limiting. It is therefore desired to be secured in the appended claims all such modifications as fall within the spirit and scope of the technology. Accordingly, what is desired to be secured by Letters Patent is the technology as defined and differentiated in the following claims, and all equivalents.

We claim:

1. A chamber flag comprising:
 - a substantially Z-shaped body having a central portion, wherein the substantially Z-shaped body defines an opening therethrough; and
 - a rod extending from the substantially Z-shaped body.
2. The chamber flag of claim 1, wherein the substantially Z-shaped body comprises a first leg extending from the central portion and a second leg extending from the central portion in a direction substantially opposite to the first leg.
3. The chamber flag of claim 1, wherein the rod is substantially parallel to the central portion of the substantially Z-shaped body.
4. The chamber flag of claim 2, wherein the first leg and the second leg are substantially orthogonal to the central portion.
5. The chamber flag of claim 2, wherein the first leg defines the opening and the rod extends from the second leg.
6. The chamber flag of claim 1, wherein a maximum outer width of the rod is substantially similar to a minimum inner width of the opening.
7. The chamber flag of claim 1, wherein a maximum outer width of the rod is less than a minimum inner width of the opening.
8. The chamber flag of claim 1, further comprising at least one tool extending from the chamber flag.
9. The chamber flag of claim 8, wherein the tool comprises at least one of a spanner and a screwdriver.
10. A chamber flag comprising:
 - a body defining an opening having an opening axis; and
 - a rod extending from the body and having a rod axis substantially parallel to the opening axis, wherein the chamber flag is configured to support an upper receiver and a lower receiver of a firearm at a fixed angle when the rod is connected to the upper receiver and when the body is inserted into the lower receiver.
11. The chamber flag of claim 10, wherein the opening in the body is configured to align with an opening defined by the lower receiver.
12. The chamber flag of claim 10, wherein the body comprises a central portion, a first leg, and second leg, wherein the first leg extends from the central portion and the

second leg extends from the central portion in a direction substantially opposite to the first leg.

13. The chamber flag of claim **10**, wherein the body comprises a first leg that extends in a direction substantially orthogonal to at least a portion of the rod.

14. The chamber flag of claim **13**, wherein the first leg defines the opening and the rod extends from the second leg.

15. The chamber flag of claim **10**, wherein a maximum outer width of the rod is less than or substantially similar to a minimum inner width of the opening.

16. The chamber flag of claim **10**, further comprising at least one tool extending from the chamber flag.

17. The chamber flag of claim **16**, wherein the tool comprises at least one of a spanner and a screwdriver.

18. A method of temporarily securing a position of an upper receiver of a firearm and a lower receiver of the firearm, the method comprising:

inserting a rod of a chamber flag into a pin channel of the upper receiver;

inserting a portion of a body of the chamber flag into the lower receiver, wherein the lower receiver defines a pin opening; and

inserting a pin through the pin opening and an opening defined by the body of the chamber flag.

19. The method of claim **18**, further comprising the step of removing a pin from the pin channel in the upper receiver before inserting the rod into the pin channel.

20. The method of claim **18**, wherein the portion of the body of the chamber flag is a first leg that extends in a direction substantially orthogonal to at least a portion of the rod.

* * * * *