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(54) **HANDGUN SLIDE TO FRAME ADAPTER**

(71) Applicant: **Adams Arms, LLC**, Odessa, FL (US)

(72) Inventors: **T.K. Martindill**, Ravenna, TX (US); **James Granger**, Crystal Beach, FL (US)

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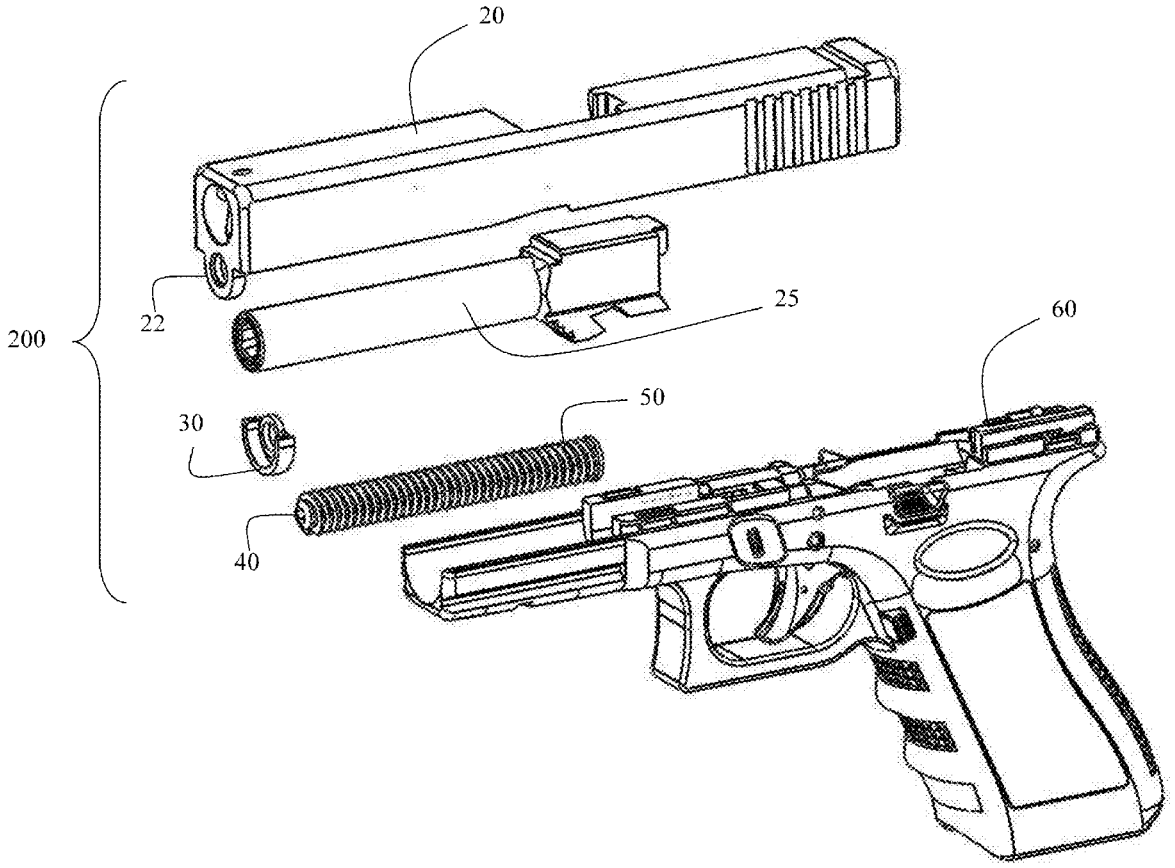
(52) **U.S. Cl.**

CPC ***F41A 3/66*** (2013.01); ***F41C 3/00*** (2013.01); ***F41A 3/86*** (2013.01); *F41A 11/02* (2013.01)

(57) **ABSTRACT**

An adapter for utilizing a handgun slide manufactured for use on a common generation and version of handgun frame to make its use capable on a newer generation or versions frame having different dimensional features. The adapter makes allows use of a slide assembly comprising of a slide, barrel, recoil spring and guide from previous generations on more recent generations of the same handgun. The adapter is mounted on the previous versions dust cover creating a new geometry to allow for proper function inside the newer generation's frame. The adapter includes a bushing. The earlier generation's slides have an outer surface shape smaller than the newer generation slide with the adapter creating the geometry necessary for compatibility.



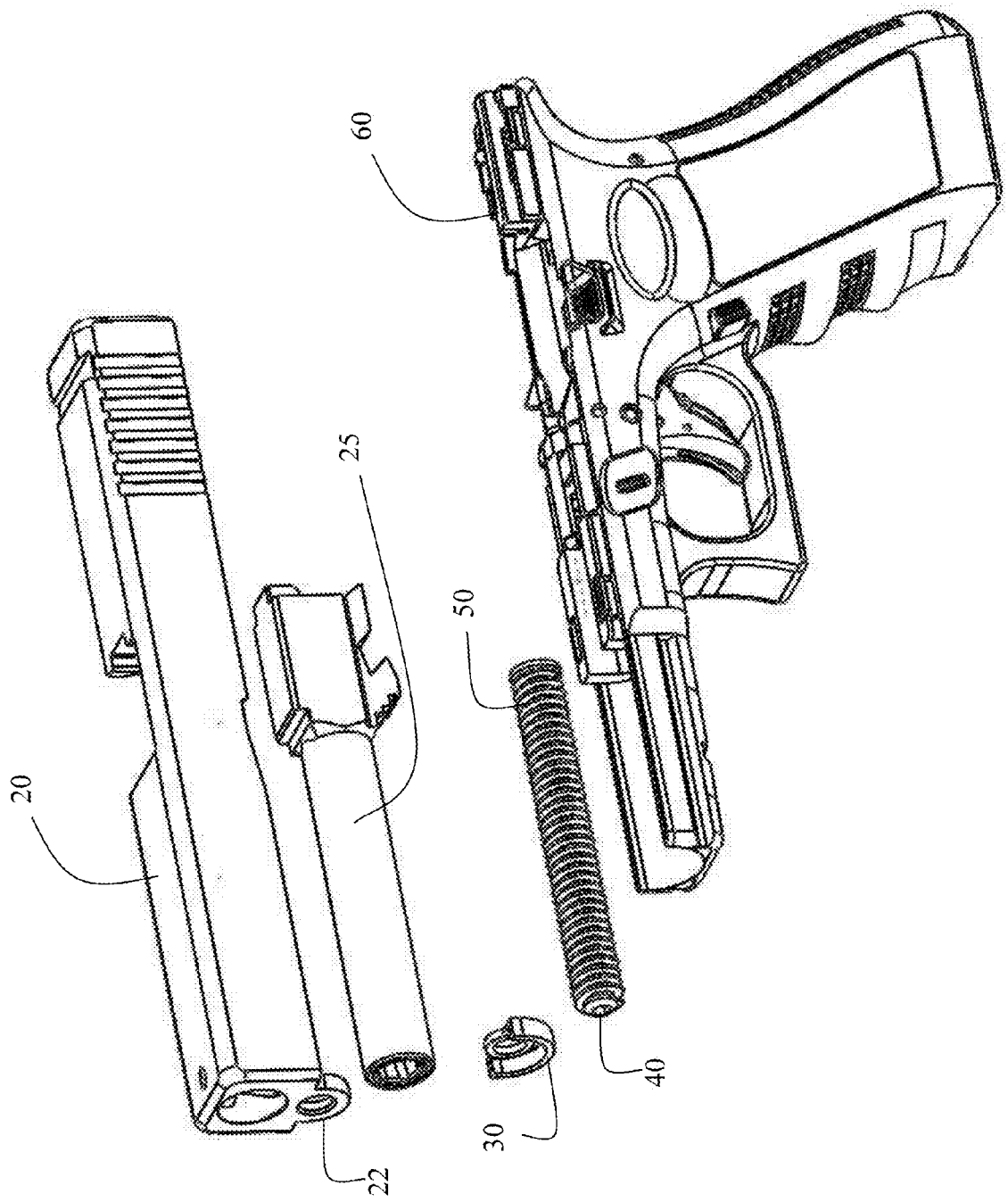


FIG. 1A

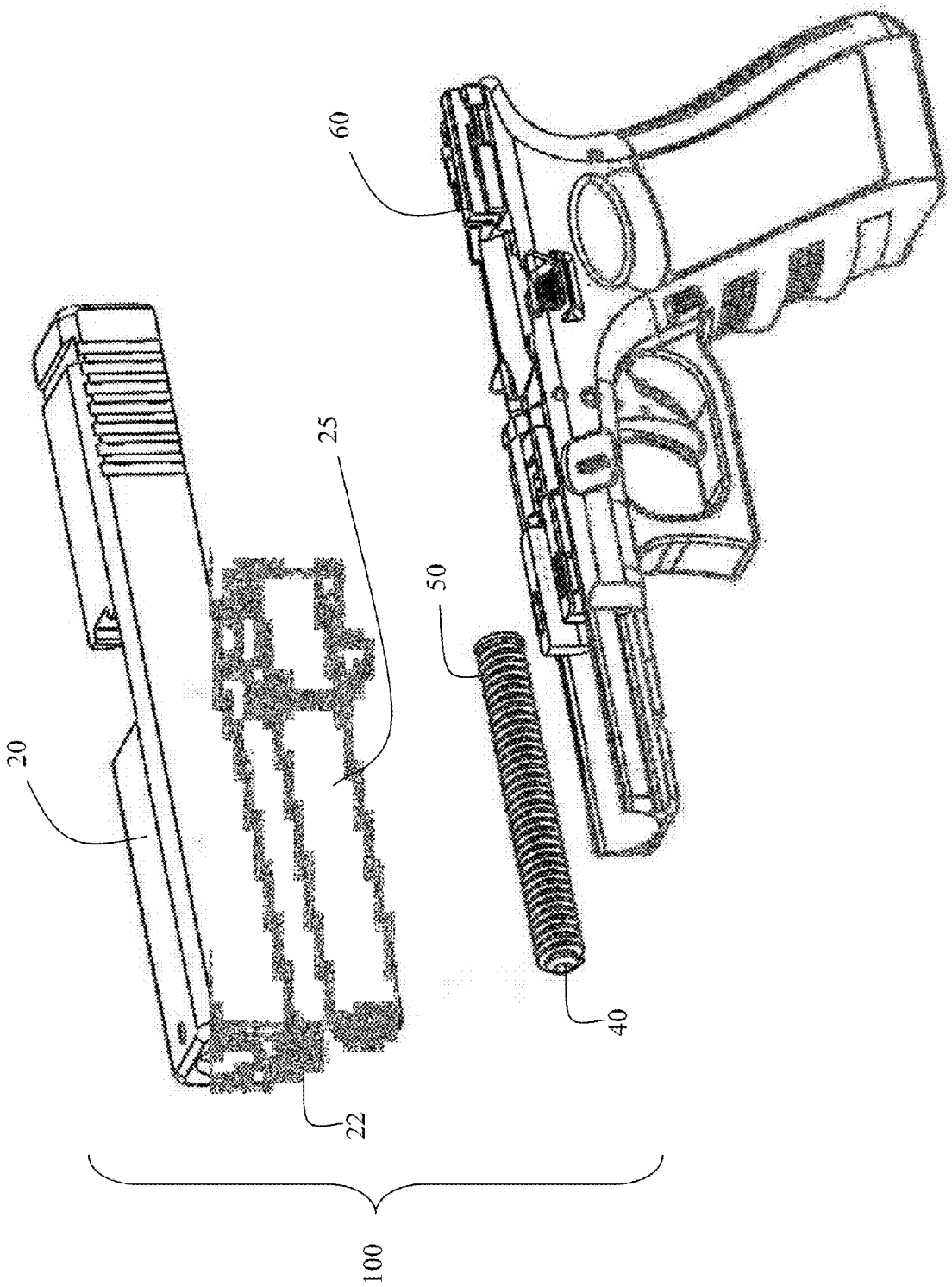


FIG. 1B

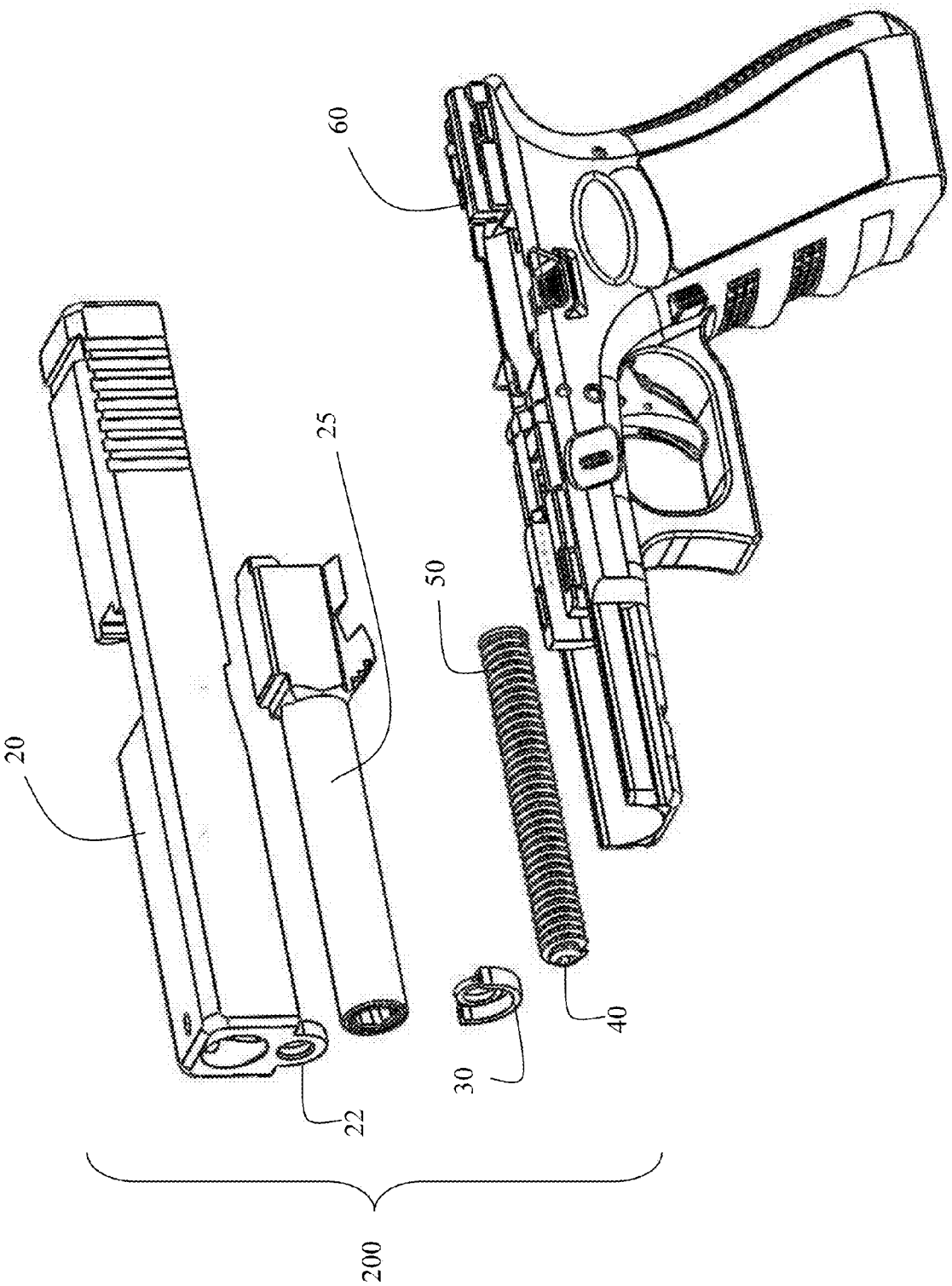


FIG. 1C

FIG. 2A

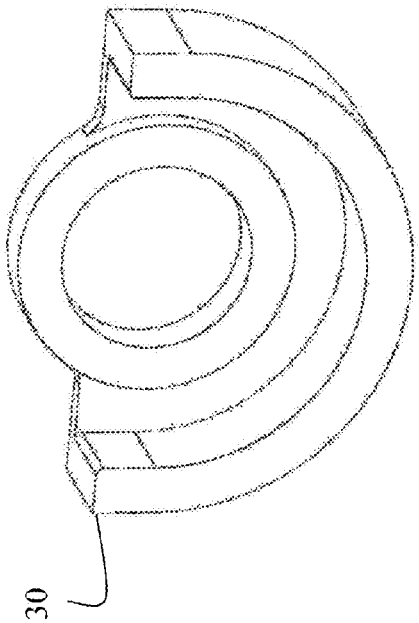
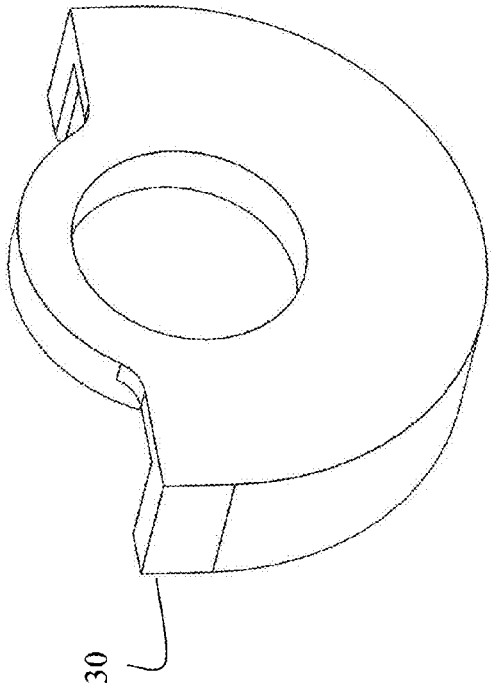


FIG. 2B



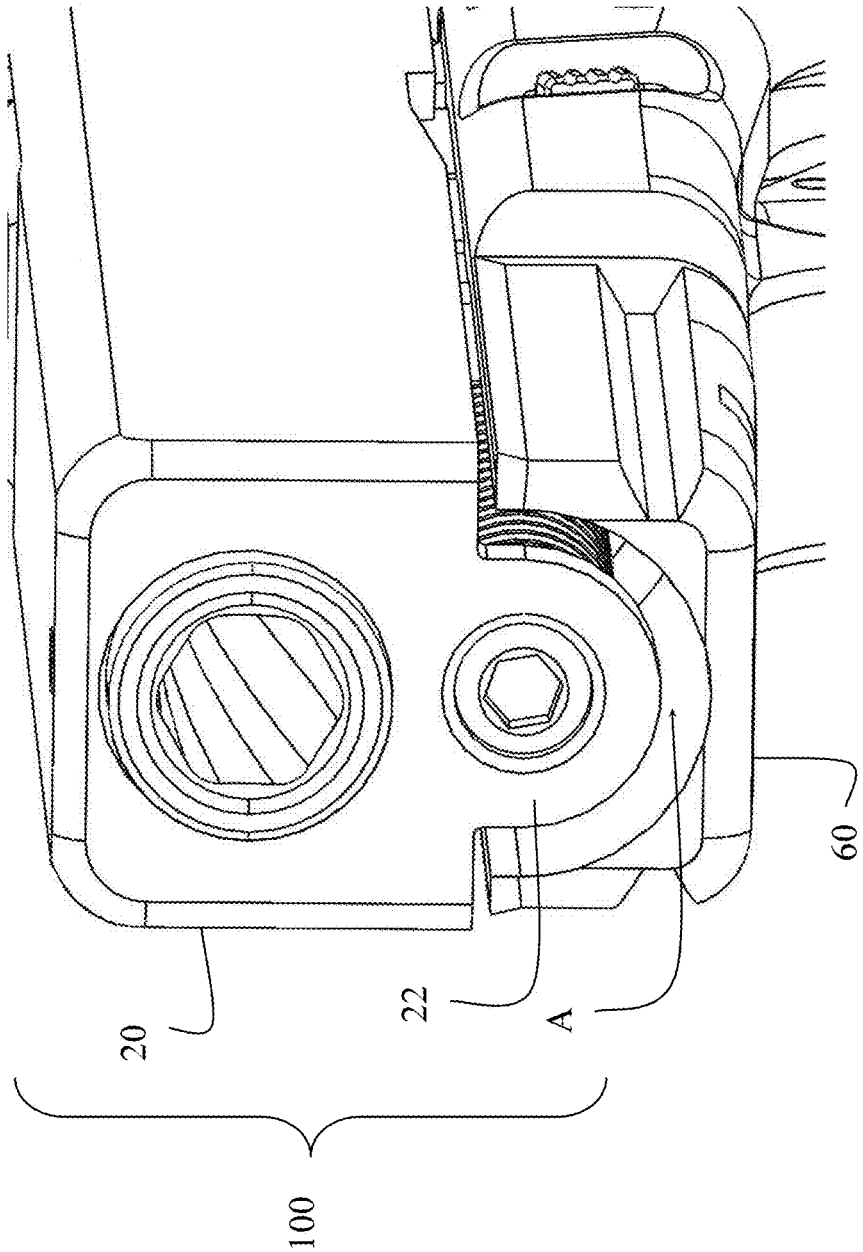


FIG. 3

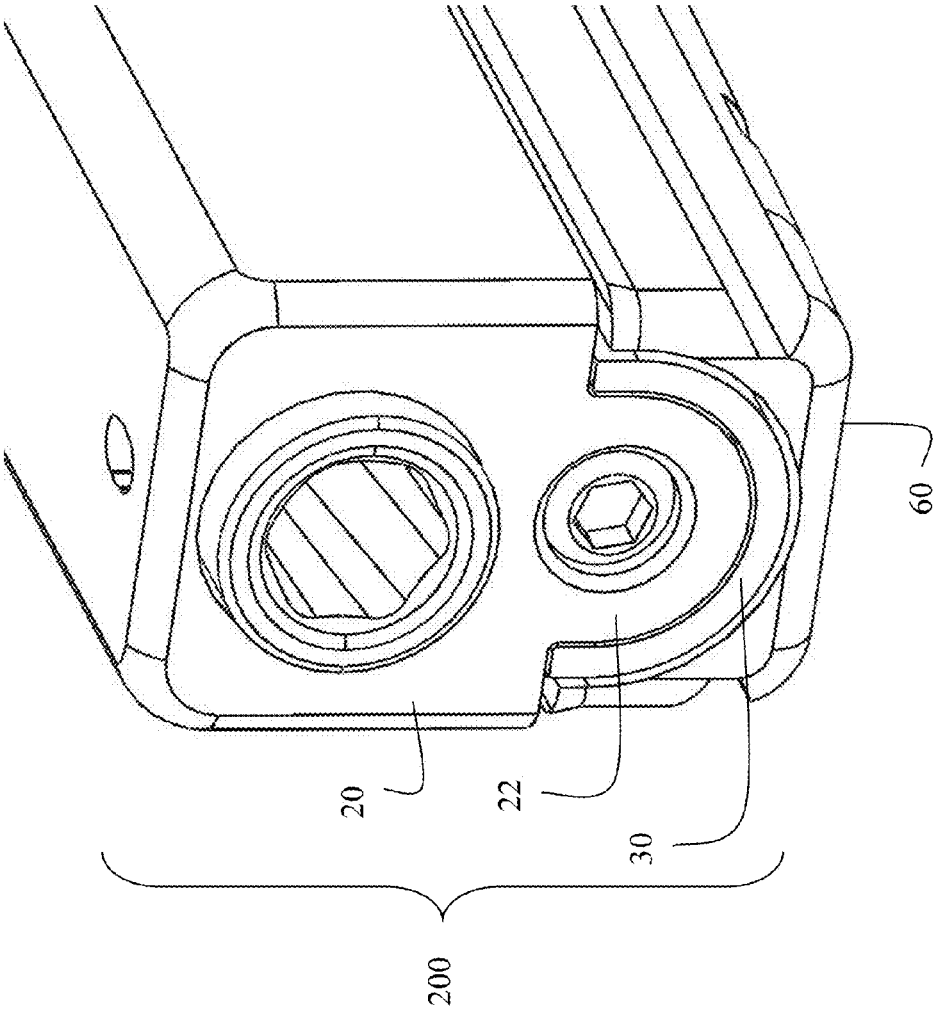


FIG. 4A

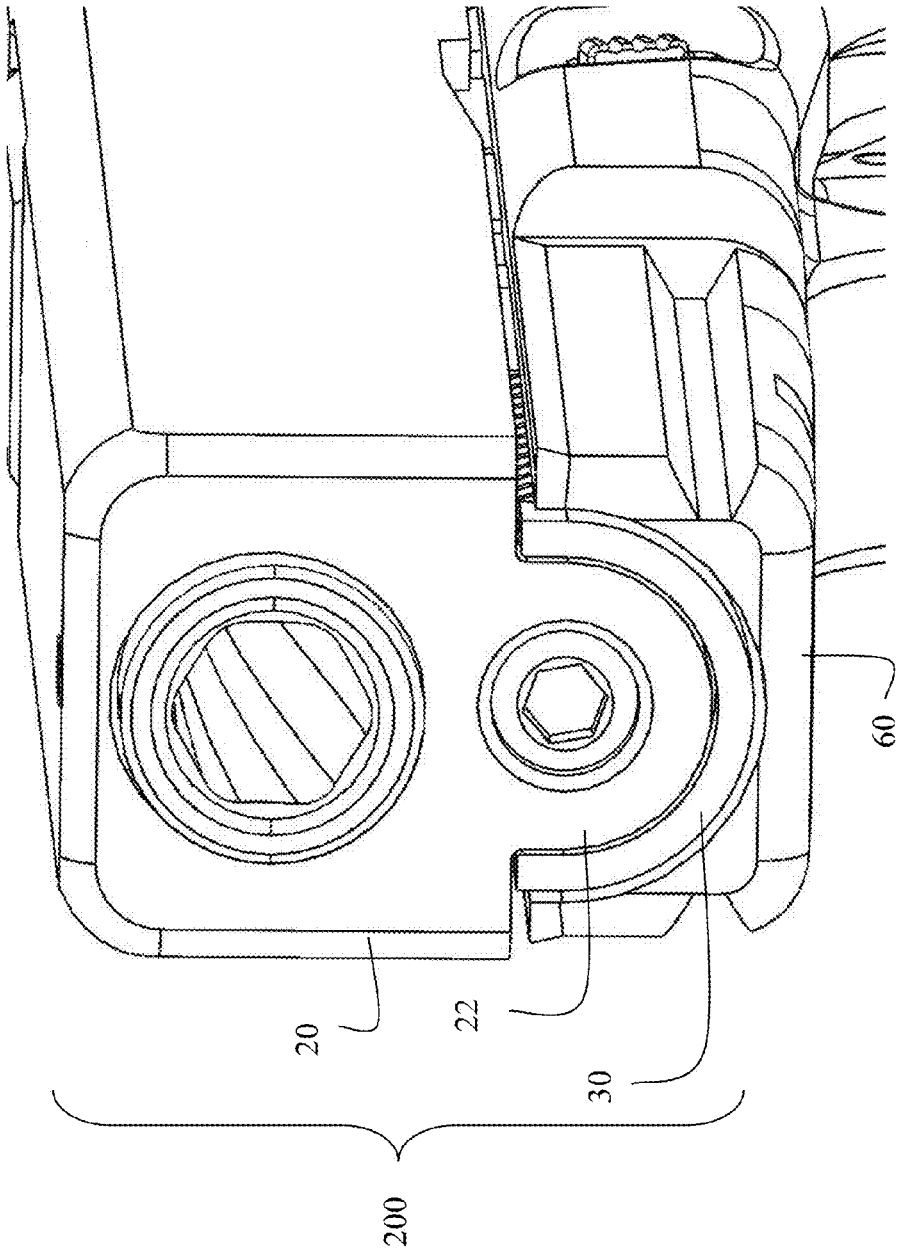


FIG. 4B

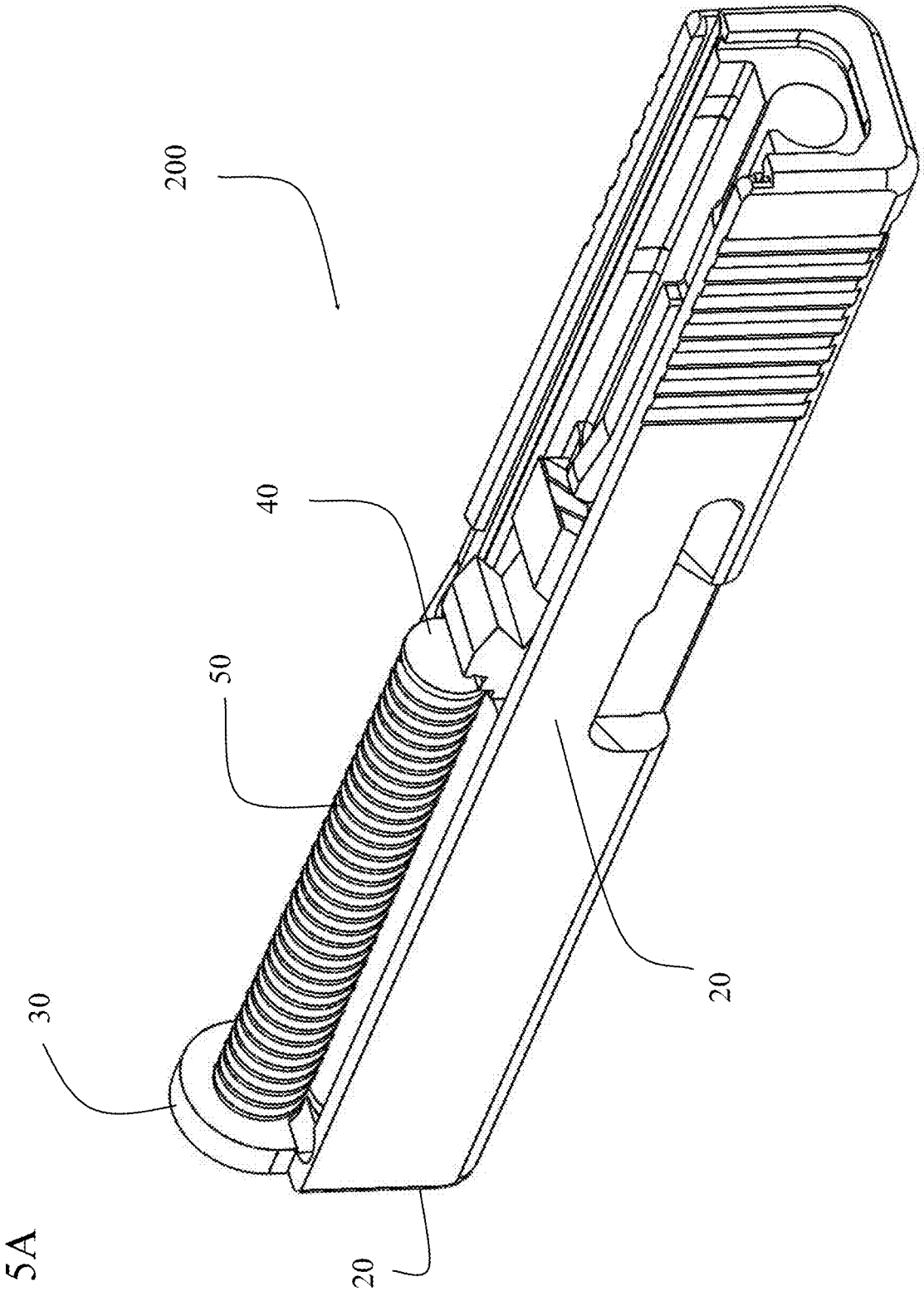


FIG. 5A

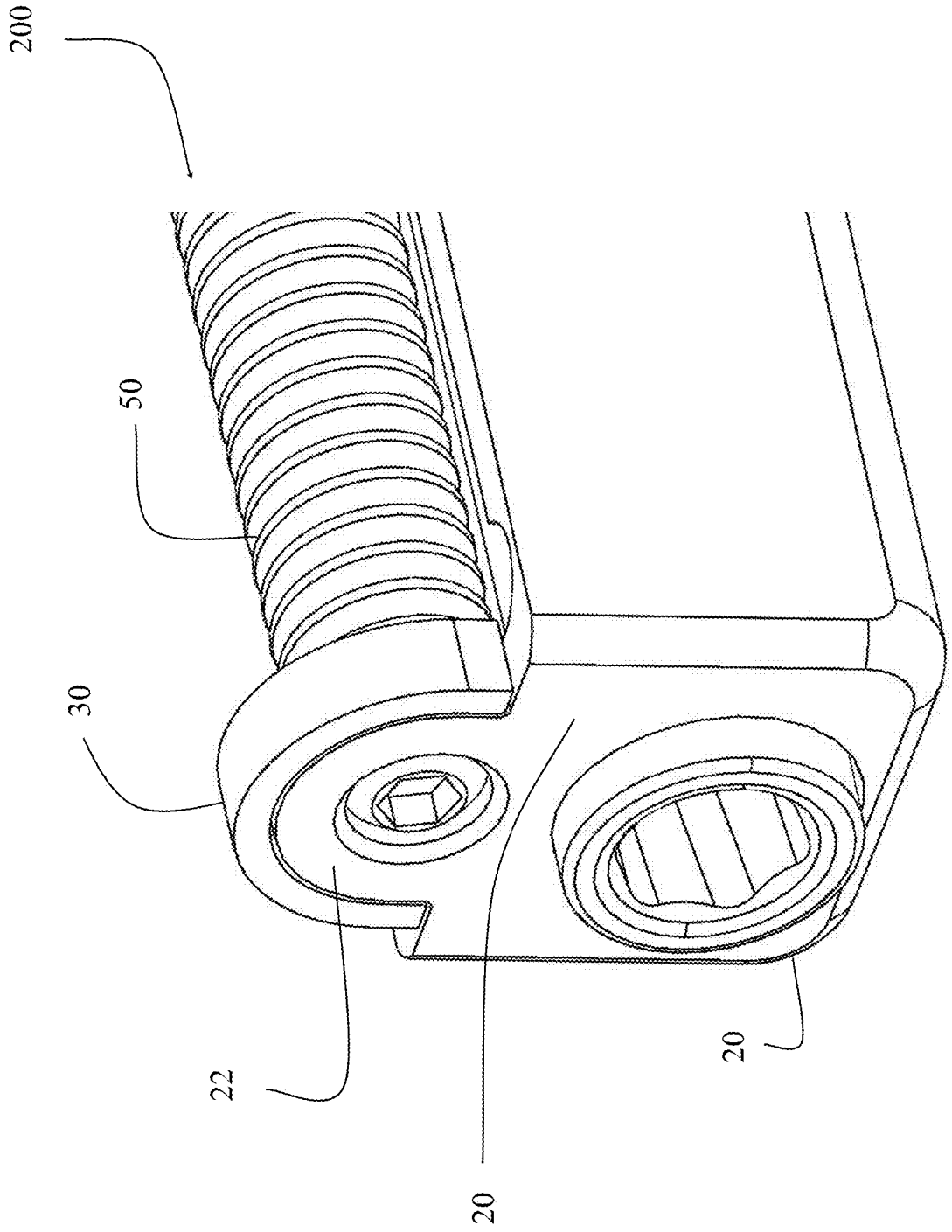


FIG. 5B

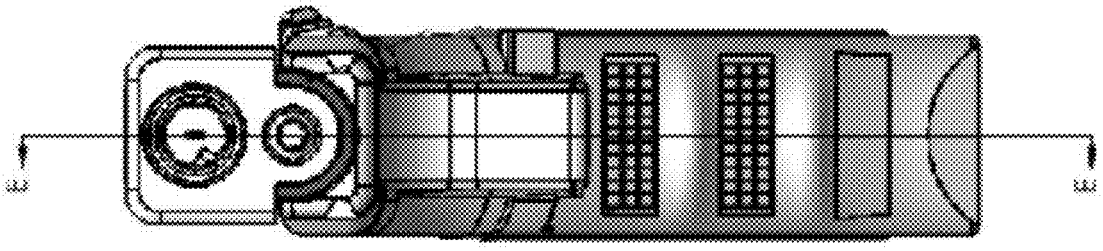


FIG. 6

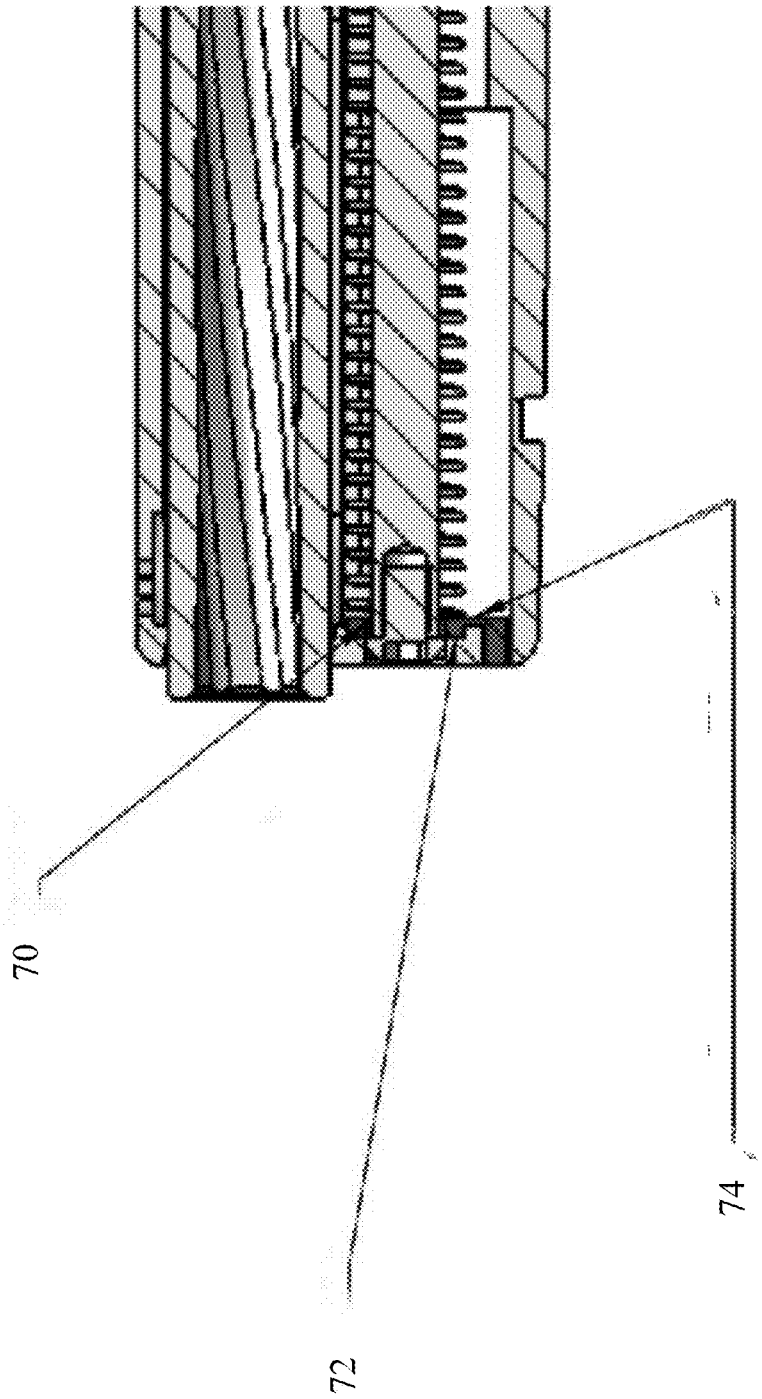


FIG. 7

HANDGUN SLIDE TO FRAME ADAPTER

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application is a non-provisional application of U.S. Provisional Application 62/219,559, filed Sep. 16, 2015, which application is incorporated herein by reference as though fully contained herein.

FIELD OF INVENTION

[0002] The present invention relates to firearms, and more particularly to an auto loading handgun, more particularly semi-automatic handguns. More particularly this invention specifically pertains to a device in the form of an adapter having a bushing that allows for the use of the slide of a first handgun, having a spring guide rod assembly, with the frame or body of a second handgun.

BACKGROUND OF THE INVENTION

[0003] Automatic/semiautomatic pistol carries a slide/barrel assembly that slides longitudinally along a frame. A spring braced between the slide and frame holds the slide/barrel assembly in a forward and closed position. A cartridge chamber exists within this slide/barrel assembly. In the forward position, the rear end of the barrel is covered by the breech face upon the slide. A hole in the breech face provides access to the cartridge chamber for a firing element to pierce the primer of the pistol cartridge, thereby discharging the cartridge and expelling the bullet. The firing element can be driven forward by a hammer striking it, or it can be moved backward under spring pressure and released to drive the firing element forward through the breech face to the primer. In either instance the hammer or the firing element itself is connected through mechanical means to a trigger operated by the user.

[0004] Upon discharge of a pistol cartridge, a bullet travels forward out through the barrel, the slide/barrel assembly moves rearward for a specific distance where the barrel moves slightly downward and stops, the slide continues to move rearward opening the cartridge chamber. The extractor (through spring pressure) holds the spent cartridge casing to the breech face, removing it from the barrel. As the slide continues rearward, the ejector (mounted in the frame) contacts the spent cartridge casing, pushing it away from the breech face, causing the extractor spring pressure to be overcome to expel the empty cartridge from the pistol. Therein the recoil spring's tension aside from assisting (or not, if the spring is to heavy for the cartridge being used) in the removal of the spent casing effects the recoil/barrel jump and thus accuracy as well as the speed by which the next cartridge may be cycled for firing in the case of competitive target and/or military shooting.

[0005] Now at maximum rearward travel, the slide has cleared the magazine assembly, allowing the next cartridge in the magazine to move up (magazine cartridges are loaded under spring pressure). Spring(s) pressure pushes the slide forward contacting the next cartridge from the magazine and delivering it to the cartridge chamber which closes as the slide moves forward. Slide fully forward, the pistol is loaded ready to fire again.

[0006] This generally describes the operation of an automatic pistol with a locked breech mechanism, fired either by striker or hammer operation. A straight blowback mechanism operates similarly. However, the barrel is not part of a slide/barrel assembly. The slide containing the breech face is held forward closing the cartridge chamber only by spring force and with no particular mechanical interlock.

[0007] Moreover, because of inherent size limitations, small-sized handguns currently available have very limited fire power and very poor accuracy and tend to be relatively heavy and difficult to hold. Such handguns are typically 0.22, 0.25 or 0.32 caliber and have barrels which are no more than about two inches long. Accuracy is limited not only by the shortness of the barrel, but also by a tendency of the muzzle to rise (recoil) when the gun is fired.

[0008] Two important characteristics of semiautomatic handguns are minimum recoil and minimum cycle-time (i.e. the time between successive firings of the handgun). Other important factors are the gun weight and fire power. When a gun is fired the explosion of the gunpowder in the ammunition casing or shell creates a forward force on the bullet that propels the bullet out of the gun barrel. Basic physics requires that an equal and opposite force be exerted rearward by the bullet on the gun. This force is referred to as recoil. The portion of the recoil sensed by the gun user is "felt" recoil. The felt recoil is less than the total recoil because semiautomatics contain a spring, or springs, which absorb some of the energy released when fired.

[0009] Furthermore, as is well known, recoil of any handgun increases as the handgun, or that part of it which recoils, is decreased in weight or the power of the ammunition that is fired is increased. The physical reason is that a given cartridge will develop a characteristic amount of recoil momentum, for a particular length of barrel, regardless of the type of the handgun in which it is fired. This recoil momentum results in an increase in the energy of recoil which is proportional to the square of the recoil momentum and varies inversely with the mass of the recoiling part. In other words, doubling the recoil momentum by increasing the power of the cartridge will quadruple the recoil energy of the handgun. Reducing the recoiling mass, on the other hand, by fifty percent will double the recoil energy. Therefore, since reducing the weight of a handgun and increasing the power of the ammunition substantially increases the handgun's recoil, recoil is a critical problem in stability of light-weight handguns when firing powerful ammunition. Conversely decreasing the load of the ammunition with the OME spring jeopardizes the ability of the handgun to cycle the next round.

[0010] Moreover, because the gun barrel wherein the recoil force is applied is usually slightly above the wrist of the user, a moment is created about the wrist that tends to rotate the gun barrel upward after firing. In a semiautomatic handgun the result is that the handgun must be re-aimed before it can be fired again. It can be appreciated, therefore, that minimal felt recoil is a desirable attribute for handguns since it will reduce the time required to re-aim the handgun.

[0011] Similarly, the dual spring systems generally utilize a guide rod of greater diameter making interchanging with single spring rod assemblies impossible, as the same is also a fixed element of the manufacturer. Thus the present invention overcomes many of the disadvantages inherent in the manufacture, assembly/disassembly, use and maintenance of conventional handguns.

SUMMARY OF INVENTION

[0012] The present invention is directed to the field of firearms and more particularly the guide rod assembly of a semi-automatic handgun. Guide rods in hand guns effectively serve the purpose of controlling the barrel jump by controlling the recoil spring as the slide reciprocates when the cartridge in the gun is discharged allowing for the shooter to better control the handgun's movement at time of discharge and thus the hand gun's accuracy.

[0013] Accordingly, the present invention is directed, but not limited to, the long-felt need of handgun owners who are dissatisfaction with the original manufacture's equipment ("OME") guide rods—notably those with two (2) springs (e.g., the Generation 4 Glock handguns). Glock handguns have been the standard issue weapons of the U.S. military and police departments for decades. The previous 3 generations of Glock pistols utilized a guide rod composed of a single rod of plastic, with a single recoil spring of a spring-resistance weight of 17 pounds affixed to the rod. The "Generation 4" Glock handguns, instead, use a dual spring unit. However, the present design in the Glock Generation 4 is flawed and problematic in its application to custom or low power cartridges in that its guide rod assembly includes a rod with two (2) springs, the arrangement of which precludes: 1) use of past Generation 3 single guide rod assemblies, and 2) modification of the OME springs according to the users desired customization, be it for recoil control or the custom load in the cartridge. Thus, the dual spring system is problematic in it does not allow for the ejection of lower power or custom loaded cartridges as well as an inability to customize (e.g. alter the springs' tensions) recoil from the handgun when fired.

[0014] Thus, what is disclosed herein overcomes a safety and functionality needs resulting in dramatic improvement to semi-automatic handguns, their functionality, control and accuracy with dual spring recoil guide rods.

[0015] An object of the invention is to overcome the disadvantages of the above-described firearms by providing a modified recoil guide rod assembly and the components, some of which can be used independently, to improve the performance of Glock and like semi-automatic pistols with dual spring guide rod assemblies.

[0016] A still further object of the present invention is to provide enhanced handgun customization.

[0017] Other objects, advantages, and novel features of the present invention will become apparent from the following detailed description of the invention when considered in conjunction with the accompanying drawings.

[0018] Accordingly, the present invention does indeed accomplish the aforementioned objects. Obviously many modifications and variations of the present invention are possible in the light of the teachings herein.

BRIEF DESCRIPTION OF THE DRAWINGS

[0019] For a fuller understanding of the invention, reference should be made to the following detailed description, taken in connection with the accompanying drawings, in which:

[0020] FIGS. **1**A through **1**C are exploded views of a handgun and the inventive slide to frame adapter;

[0021] FIGS. **2**A and **2**B are perspective views of a bushing for use with the inventive slide to frame adapter that covers, blocks or otherwise occludes the gap between the handgun frame and the slide;

[0022] FIG. **3** is a perspective view of a handgun assembly without the bushing of FIGS. **2**A and **2**B;

[0023] FIGS. **4**A and **4**B are perspective views of a handgun assembly without the bushing of FIGS. **2**A and **2**B;

[0024] FIGS. **5**A and **5**B are perspective views of the inventive slide to frame adapter;

[0025] FIG. **6** is a front end perspective view of a handgun with the inventive slide to frame adapter; and

[0026] FIG. **7** is a cross-section view along line E of FIG. **6**.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0027] In the following detailed description of the preferred embodiments, reference is made to the accompanying drawings, which form a part hereof, and within which are shown by way of illustration specific embodiments by which the invention may be practiced. It is to be understood that other embodiments may be utilized and structural changes may be made without departing from the scope of the invention

[0028] FIGS. **1**A-**1**B show a first embodiment of the invention. The invention **10** of this embodiment includes slide **20** having guide rod cover **22**, barrel **25**, bushing **30**, guide rod **40** around which spring **50** is configured and frame **60**. Slide **20** (including guide rod cover **22**), barrel **25**, guide rod **40** and spring **50** are collectively referenced as slide assembly **100**.

[0029] In one illustrative embodiment, slide assembly **100** (again including slide **20**, barrel **25**, guide rod **40** and spring **50**) includes components designed for a Glock Generation 3 or earlier generation (hereinafter G3). In this illustrative embodiment frame **60** is a component of a Glock Generation 4 (hereinafter G4). FIGS. **2**A and **2**B show the opposing sides of bushing **30**.

[0030] FIG. **3** is an illustration of a G3 slide assembly **100** on G4 frame **60**. This modification, without the use of busing **30**, results in gap A between slide **20** (including guide rod cover **22**) and frame **60**. This gap provides numerous disadvantages, including, inter alia, allowing debris to enter the handgun.

[0031] FIGS. **4**A and **4**B show G3 slide assembly **100** in combination with bushing **30** on G4 frame **60**. As it can be seen, bushing **30** occludes gap A thereby providing a seal from debris. In this embodiment, an opening on the face of bushing **30** receives guide rod cover **22**.

[0032] FIG. **1**C along with **5**A and **5**B is are illustrations of slide **20** having guide rod cover **22**, barrel **25**, bushing **30**, guide rod **40** around which spring **50** is configured—commonly referenced as adapter assembly **200**. In this embodiment, bushing **30** is integrally formed with slide **20**. Alternatively, bushing **30** can be attached to, or integrally formed with, guide rod **40**.

[0033] FIG. **6** is a front end perspective view of a handgun with the inventive slide to frame adapter. Referring to FIG. **7**, wherein the invention includes a bushing that allows the use of a guide rod having a shaft diameter that differs from the slide guide rod hole diameter. Hole, or depression, **70** has a shape larger than the shaft of the guide rod. This allows a guide rod to fit within the bushing.

[0034] Outer surface **72** has a shape and size smaller than the diameter of the slide spring seat. This allows the bushing to fit with the slide spring seat. Surface **74** allows contact between the bushing and the recoil spring.

[0035] It will be seen that the advantages set forth above, and those made apparent from the foregoing description, are efficiently attained and since certain changes may be made in the above construction without departing from the scope of the invention, it is intended that all matters contained in the foregoing description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

[0036] It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which, as a matter of language, might be said to fall there between.

What is claimed is:

1. An adapter for use with a handgun, comprising:

a. a slide having guide rod cover;

b. a barrel;

c. a bushing; and

d. a guide rod around which a spring is configured.

* * * * *