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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
63/374,941	09/08/2022		150	RARETRG 12		

26875
WOOD, HERRON & EVANS, LLP
600 VINE STREET
SUITE 2800
CINCINNATI, OH 45202

CONFIRMATION NO. 2714
CORRECTED FILING RECEIPT



0000000049749643

Date Mailed: 10/17/2022

Receipt is acknowledged of this provisional patent application. It will not be examined for patentability and will become abandoned not later than twelve months after its filing date. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a corrected Filing Receipt identifying the requested changes, preferably by including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections provided that the request is grantable.

Inventor(s)

Brian A. Blakley, Pinellas Park, FL;

Applicant(s)

ABC IP, LLC, Dover, DE;

Power of Attorney:

WAYNE JACOBS -35553

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 09/12/2022

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 63/374,941**

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

FIREARM TRIGGER MECHANISM

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No**PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES**

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

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For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER**Title 35, United States Code, Section 184****Title 37, Code of Federal Regulations, 5.11 & 5.15****GRANTED**

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier

license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

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SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit <http://www.SelectUSA.gov> or call +1-202-482-6800.



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CONFIRMATION NO. 2714

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page 1 of 3

Atrius Ex. 1003-0004

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Title 37, Code of Federal Regulations, 5.11 & 5.15

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PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT7529185

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT
CONVEYING PARTY DATA	
Name	Execution Date
BRIAN A. BLAKLEY	09/08/2022
RECEIVING PARTY DATA	
Name:	ABC IP, LLC
Street Address:	8 THE GREEN, SUITE A
City:	DOVER
State/Country:	DELAWARE
Postal Code:	19901
PROPERTY NUMBERS Total: 1	
Property Type	Number
Application Number:	63374941
CORRESPONDENCE DATA	
Fax Number:	
<i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.</i>	
Email:	jwalker@whe-law.com
Correspondent Name:	WAYNE L. JACOBS
Address Line 1:	WOOD, HERRON & EVANS, LLP
Address Line 2:	600 VINE STREET, SUITE 2800
Address Line 4:	CINCINNATI, OHIO 45202
ATTORNEY DOCKET NUMBER:	RARETRG-12
NAME OF SUBMITTER:	WAYNE L. JACOBS
SIGNATURE:	/Wayne L. Jacobs/
DATE SIGNED:	09/09/2022
	This document serves as an Oath/Declaration (37 CFR 1.63).
Total Attachments: 2	
source=RARETRG12-Excuted_Declaration-Assignment_Blakley#page1.tif	
source=RARETRG12-Excuted_Declaration-Assignment_Blakley#page2.tif	

**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN PATENT APPLICATION
USING AN APPLICATION DATA SHEET (37 CFR 1.76) AND ASSIGNMENT**

Title of Invention: FIREARM TRIGGER MECHANISM

As the below named inventor, I hereby declare that:

This Declaration is directed to:

☒ The attached application

OR

☐ United States Application Number or PCT International Application
Number _____ filed on _____.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the above-identified application.

I have reviewed and understand the contents of the above-identified application, including the claims.

I am aware of the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in 37 C.F.R. § 1.56.

Whereas, the undersigned inventor(s) has/have made certain inventions, improvements and discoveries (herein referred to as the "Invention") disclosed in the above-identified patent application;

Whereas, ABC IP, LLC, a Limited Liability Company of Delaware, having a place of business at 8 The Green, Suite A, Dover, Delaware 19901 (herein referred to as the "ASSIGNEE"), desires to acquire, and each undersigned inventor desires to grant to the ASSIGNEE, the entire worldwide right, title, and interest in and to the Invention and in and to any and all patent applications and patents directed thereto;

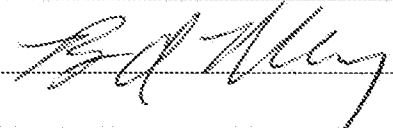
Now, therefore, for good and valuable consideration, the receipt and sufficiency thereof being hereby acknowledged, each undersigned inventor ("ASSIGNOR") hereby sells or has sold, assigns or has assigned, and otherwise transfers or has transferred to the ASSIGNEE, its successors, legal representatives, and assigns, the entire worldwide right, title, and interest in and to the Invention, the above-identified United States patent application, and any and all other patent applications and patents for the Invention which may be applied for or granted therefor in the United States and in all foreign countries and jurisdictions, including all divisions, continuations, reissues, reexaminations, renewals, extensions, counterparts, substitutes, and extensions thereof, and all rights of priority resulting from the filing of such applications and granting of such patents. In addition, each undersigned inventor hereby authorizes and requests the Director of the United States Patent and Trademark Office to issue any United States Patent, and foreign patent authorities to issue any foreign patent, granted for the Invention, to the

ASSIGNEE, its successors, legal representatives, and assigns, the entire worldwide right, title, and interest in and to the same to be held and enjoyed by the ASSIGNEE, its successors, legal representatives, and assigns to the full end of the terms for which any and all such patents may be granted, as fully and entirely as would have been held and enjoyed by the undersigned had this Assignment not been made; and each undersigned inventor agrees to execute any and all documents and instruments and perform all lawful acts reasonably related to recording this Assignment or perfecting title to the Invention and all related patents and applications, in the ASSIGNEE, its successors, legal representatives, and assigns, whenever requested by the ASSIGNEE, its successors, legal representatives, or assigns.

Each undersigned inventor acknowledges their prior and ongoing obligations to sell, assign, and transfer the rights under this Assignment to the ASSIGNEE and is unaware of any reason why they may not have the full and unencumbered right to sell, assign, and transfer the rights hereby sold, assigned, and transferred, and has not executed, and will not execute, any document or instrument in conflict herewith. Each undersigned inventor also hereby grants the ASSIGNEE, its successors, legal representatives, and assigns, the right to insert in this Assignment any further identification (including, but not limited to, patent Application Number) which may be necessary or desirable for recordation of this Assignment. This Assignment is governed by the substantive laws of Delaware, and any disputes will be resolved in a court sited in Delaware.

I hereby acknowledge that any willful false statement made in this Declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

Legal name of Inventor: Brian A. Blakley

Inventor's Signature:  Date: 9/8/2022

Residence
City/State/Country: Pinellas Park, FL, United States of America

Mailing Address: 8 The Green, Suite A, Dover, Delaware 19901

Citizenship: US

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TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	Not Yet Assigned
Filing Date	Concurrently Herewith
First Named Inventor	Brian A. Blakley
Title	FIREARM TRIGGER MECHANISM
Art Unit	N/A
Examiner Name	Not Yet Assigned
Attorney Docket Number	RARETRG 12

SIGNATURE of Applicant or Patent Practitioner

Signature	/Wayne L. Jacobs/	Date (Optional)	September 8, 2022
Name	Wayne L. Jacobs	Registration Number	35,553
Title (if Applicant is a juristic entity)	Attorney of Record		
Applicant Name (if Applicant is a juristic entity)		ABC IP, LLC	

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.

☐

*Total of 1 forms are submitted.

Doc Code: PA
Document Description: Power of Attorney

PTO/AIA/82B (07-13)
Approved for use through 03/31/2011. OMB 0861-0045
U.S. Patent and Trademark Office U.S. DEPARTMENT OF COMMERCE

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POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date
Not Yet Assigned	Concurrently Herewith

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

☒ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above:

26875

OR

☐ I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:

☐ The address associated with the above-mentioned Customer Number

OR

☐ The address associated with Customer Number:

OR

☐ Firm or Individual Name

Address

City

State

Zip

Country

Telephone

Email

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

ABC IP, LLC

☐ Inventor or Joint Inventor (title not required below)

☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)

☒ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)

☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity)

Signature

Date (Optional)

Name

Title

LAWRENCE A. DEMONICO
PRESIDENT

NOTE: Signatures - This form must be signed by the applicant in accordance with 37 CFR 1.23. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

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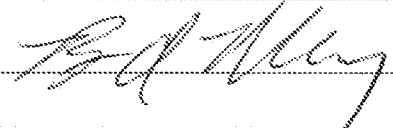
Now, therefore, for good and valuable consideration, the receipt and sufficiency thereof being hereby acknowledged, each undersigned inventor ("ASSIGNOR") hereby sells or has sold, assigns or has assigned, and otherwise transfers or has transferred to the ASSIGNEE, its successors, legal representatives, and assigns, the entire worldwide right, title, and interest in and to the Invention, the above-identified United States patent application, and any and all other patent applications and patents for the Invention which may be applied for or granted therefor in the United States and in all foreign countries and jurisdictions, including all divisions, continuations, reissues, reexaminations, renewals, extensions, counterparts, substitutes, and extensions thereof, and all rights of priority resulting from the filing of such applications and granting of such patents. In addition, each undersigned inventor hereby authorizes and requests the Director of the United States Patent and Trademark Office to issue any United States Patent, and foreign patent authorities to issue any foreign patent, granted for the Invention, to the

ASSIGNEE, its successors, legal representatives, and assigns, the entire worldwide right, title, and interest in and to the same to be held and enjoyed by the ASSIGNEE, its successors, legal representatives, and assigns to the full end of the terms for which any and all such patents may be granted, as fully and entirely as would have been held and enjoyed by the undersigned had this Assignment not been made; and each undersigned inventor agrees to execute any and all documents and instruments and perform all lawful acts reasonably related to recording this Assignment or perfecting title to the Invention and all related patents and applications, in the ASSIGNEE, its successors, legal representatives, and assigns, whenever requested by the ASSIGNEE, its successors, legal representatives, or assigns.

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Inventor's Signature:  Date: 9/8/2022

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Citizenship: US

FIREARM TRIGGER MECHANISM

Related Applications

[0001] N/A.

Technical Field

[0002] The present invention relates generally to a firearm trigger mechanism, and more particularly to a semiautomatic trigger that is selectively mechanically reset by movement of the bolt carrier.

Background

[0003] In a standard semiautomatic firearm, actuation of the trigger releases a sear, allowing a hammer or striker to fire a chambered ammunition cartridge. Part of the ammunition's propellant force is used to cycle the action, extracting and ejecting a spent cartridge and replacing it with a loaded cartridge. The cycle includes longitudinal reciprocation of a bolt and/or carrier, which also resets the hammer or striker.

[0004] A standard semiautomatic trigger mechanism includes a disconnecter, which holds the hammer or striker in a cocked position until the trigger member is reset to engage the sear. This allows the firearm to be fired only a single time when the trigger is pulled and held, because the user is not typically able to release the trigger rapidly enough so that the sear engages before the bolt or bolt carrier returns to its in-battery position. The disconnecter prevents the firearm from either firing multiple rounds on a single pull of the trigger, or from allowing the hammer or striker to simply "follow" the bolt as it returns to battery without firing a second round, but leaving the hammer or striker uncocked.

[0005] For various reasons, shooters desire to increase the rate of semiautomatic fire. Sometimes this is simply for entertainment and the feeling of shooting a machine gun. In the past, users have been known to employ “bump firing” to achieve rapid semiautomatic fire. Bump firing uses the recoil of the semiautomatic firearm to fire shots in rapid succession. The process involves bracing the rifle with the non-trigger hand, loosening the grip of the trigger hand (but leaving the trigger finger in its normal position in front of the trigger), and pushing the rifle forward in order to apply pressure on the trigger from the finger while keeping the trigger finger stationary. When fired with the trigger finger held stationary, the firearm will recoil to the rear and allow the trigger to reset as it normally does. When the non-trigger hand pulls the firearm away from the body and back forward toward the original position, it causes the trigger to be pressed against the stationary finger again, firing another round as the trigger is pushed back.

[0006] Other devices have been offered that facilitate the bump fire process. One is shown in U.S. Patent No. 6,101,918, issued August 15, 2000, to William Akins for a Method and Apparatus for Accelerating the Cyclic Firing Rate of a Semi-automatic Firearm. This device, sold for some time as the Akins Accelerator™, allowed the receiver and action of the firearm to move longitudinally relative to the butt stock and used a spring to assist forward return movement. Other devices, such as that shown in U.S. Patent No. 8,127,658, issued March 6, 2012, and other patents owned by Slide Fire Solutions provide a replacement stock and handgrip assembly that facilitates bump firing, but without spring assistance.

[0007] Other solutions to increase the rate of semiautomatic fire include pull/release trigger mechanisms. These devices cause one round to be fired when the trigger is pulled

and a second round to be fired when the trigger is released. Such a device is shown in U.S. Patent No. 8,820,211, issued September 2, 2014, entitled Selectable Dual Mode Trigger for Semiautomatic Firearms. A device like this is offered by FosTech Outdoors, LLC as the ECHO TRIGGER™. Another device, offered by Digital Trigger Technologies, LLC under the name DigiTrigger™, provides a dual mode trigger in which the pull/release operating function is achieved electronically.

[0008] The above-described devices either require practice to use reliably, are complex, and/or are expensive to manufacture and install.

[0009] Another device for increasing the rate of semiautomatic fire is shown in U.S. Patent Nos. 9,568,264; 9,816,772; and 9,939,221, issued to Thomas Allen Graves. The devices shown in these patents forcefully reset the trigger with rigid mechanical contact between the trigger member and the bolt as the action cycles. This invention, however, does not provide a “drop-in” solution for existing popular firearm platforms, like the AR15, AK47 variants, or the Ruger 10/22™. To adapt this invention to an AR-pattern firearm, for example, would require not only a modified fire control mechanism, but also a modified bolt carrier.

[0010] Yet another device for increasing the rate of semiautomatic fire is shown in U.S. Patent No. 7,398,723, issued to Brian A. Blakley, and is hereby incorporated by reference herein as if fully set forth in its entirety. The device shown in this patent has a pivoting cam which is contacted by the rearwardly traveling bolt carrier, pivoting the cam rearwardly such that the bottom surface of the cam presses downward on the trigger-

extension, forcing the rear of the trigger down, and thereby moving forward the surface of the trigger that an operator's finger engages.

[0011] Further improvement in forced reset triggers is desired.

Summary of Invention

[0012] The present invention provides a semiautomatic trigger mechanism for increasing rate of fire that can be retrofitted into popular existing firearm platforms. In particular, this invention provides a trigger mechanism that can be used in AR-pattern firearms with an otherwise standard M16-pattern bolt carrier assembly. The present invention is particularly adaptable for construction as a "drop-in" replacement trigger module that only requires insertion of two assembly pins and the safety selector. Advantageously, the present invention provides a "three position" trigger mechanism having safe, standard semi-automatic, and forced reset semi-automatic positions.

[0013] In one aspect, for a firearm having a receiver with a fire control mechanism pocket, transversely aligned pairs of hammer and trigger pin openings in the pocket, and a bolt carrier that reciprocates, a trigger mechanism comprises a hammer having a sear catch and a hook for engaging a disconnecter and mounted in the fire control mechanism pocket to pivot on a transverse hammer pin between set and released positions, a trigger member having a sear and mounted in the fire control mechanism pocket to pivot on a transverse trigger pin between set and released positions, wherein the sear and sear catch are in engagement in the set positions of the hammer and trigger member and are out of engagement in the released positions of the hammer and trigger, a disconnecter having a hook for engaging the hammer and mounted in the fire control

mechanism pocket to pivot on the transverse trigger pin, a cam having a cam lobe and mounted in the fire control mechanism pocket to pivot on a transverse cam pin, the cam being pivotable between a first position at which the cam lobe does not force the trigger member towards the set position and a second position at which the cam lobe does force the trigger member towards the set position, and a safety selector mounted in the fire control mechanism pocket to pivot between safe, standard semi-automatic, and forced reset semi-automatic positions. In the standard semi-automatic position, rearward movement of the bolt carrier causes rearward pivoting of the hammer and pivoting of the cam from the first position to the second position such that the cam lobe forces the trigger member towards the set position but prior to reaching the set position the disconnecter hook catches the hammer hook, and thereafter forward movement of the bolt carrier causes the cam to pivot to the first position, at which time a user must manually release the trigger member to free the hammer from the disconnecter to permit the hammer and trigger member to pivot to their set positions so that the user can pull the trigger member to fire the firearm. In the forced reset semi-automatic position, rearward movement of the bolt carrier causes rearward pivoting of the hammer and pivoting of the cam from the first position to the second position such that the cam lobe forces the trigger member to the set position, the safety selector preventing the disconnecter hook from catching the hammer hook, and thereafter forward movement of the bolt carrier causes the cam to pivot to the first position, at which time the user can pull the trigger member to fire the firearm without manually releasing the trigger member.

[0014] The safety selector can have a protuberance thereon which, when the safety selector is in the forced reset semi-automatic position, contacts the disconnecter preventing the disconnecter hook from catching the hammer hook.

[0015] In another aspect, for a firearm having a receiver with a fire control mechanism pocket, assembly pin openings in the pocket, and a bolt carrier that reciprocates, a trigger mechanism comprises a housing having transversely aligned pairs of openings for receiving hammer and trigger pins; a hammer having a sear catch and a hook for engaging a disconnecter and mounted in the housing to pivot on a transverse axis between set and released positions, a trigger member having a sear and mounted in the housing to pivot on a transverse axis between set and released positions, wherein the sear and sear catch are in engagement in the set positions of the hammer and trigger member and are out of engagement in the released positions of the hammer and trigger, a disconnecter having a hook for engaging the hammer and mounted in the housing to pivot on the trigger member transverse axis, a cam having a cam lobe and mounted in the housing to pivot on a transverse cam pin, the cam being pivotable between a first position at which the cam lobe does not force the trigger member towards the set position and a second position at which the cam lobe does force the trigger member towards the set position, and a safety selector mounted in the housing to pivot between safe, standard semi-automatic, and forced reset semi-automatic positions. In the standard semi-automatic position, rearward movement of the bolt carrier causes rearward pivoting of the hammer and pivoting of the cam from the first position to the second position such that the cam lobe forces the trigger member towards the set position but prior to reaching the set position the disconnecter hook catches the hammer hook, and thereafter forward

movement of the bolt carrier causes the cam to pivot to the first position, at which time a user must manually release the trigger member to free the hammer from the disconnecter to permit the hammer and trigger member to pivot to their set positions so that the user can pull the trigger member to fire the firearm. In the forced reset semi-automatic position, rearward movement of the bolt carrier causes rearward pivoting of the hammer and pivoting of the cam from the first position to the second position such that the cam lobe forces the trigger member to the set position, the safety selector preventing the disconnecter hook from catching the hammer hook, and thereafter forward movement of the bolt carrier causes the cam to pivot to the first position, at which time the user can pull the trigger member to fire the firearm without manually releasing the trigger member.

[0016] The safety selector can have a protuberance thereon which, when the safety selector is in the forced reset semi-automatic position, contacts the disconnecter preventing the disconnecter hook from catching the hammer hook. The transversely aligned pairs of openings in the housing for receiving hammer and trigger pins can be aligned with the assembly pin openings in the fire control mechanism pocket of the receiver.

[0017] Other aspects, features, benefits, and advantages of the present invention will become apparent to a person of skill in the art from the detailed description of various embodiments with reference to the accompanying drawing figures, all of which comprise part of the disclosure.

Brief Description of the Drawings

[0018] Like reference numerals are used to indicate like parts throughout the various drawing figures, wherein:

[0019] FIG. 1 is a top front right perspective view of a drop-in trigger module for an AR-pattern firearm according to one embodiment of the invention.

[0020] Fig. 2 is a top rear right perspective view thereof.

[0021] Fig. 3 is a top rear right exploded perspective view thereof.

[0022] Fig. 4A is a top rear right cross-sectional view thereof with the safety selector in the safe position and with the hammer and trigger member in their set positions.

[0023] Fig. 4B is a bottom rear right cross-sectional view thereof with the safety selector in the safe position and with the hammer and trigger member in their set positions.

[0024] Fig. 5A is a top rear right cross-sectional view thereof with the safety selector in the standard semi-automatic position and with the hammer and trigger member in their set positions.

[0025] Fig. 5B is a bottom rear right cross-sectional view thereof with the safety selector in the standard semi-automatic position and with the hammer and trigger member in their set positions.

[0026] Fig. 6A is a top rear right cross-sectional view thereof with the safety selector in the forced reset semi-automatic position and with the hammer and trigger member in their set positions.

[0027] Fig. 6B is a bottom rear right cross-sectional view thereof with the safety selector in the forced reset semi-automatic position and with the hammer and trigger member in their set positions.

[0028] Fig. 7 is a cross-sectional view showing the trigger module installed in a typical AR15-pattern lower receiver, with the hammer and trigger member in their set positions and with the bolt carrier in an in-battery position, and with the safety selector in the safe position.

[0029] Fig. 8A is a view similar to Fig. 7 but with the safety selector in the standard semi-automatic position.

[0030] Fig. 8B is a view similar to Fig. 8A but after the trigger has been pulled to drop the hammer.

[0031] Fig. 8C is a view similar to Fig. 8B but with the bolt carrier cycling to the rear to pivot the hammer and cam.

[0032] Fig. 8D is a view similar to Fig. 8C but with the bolt carrier having returned to battery and the disconnecter having caught the hammer.

[0033] Fig. 9A is a view similar to Fig. 7 but with the safety selector in the forced reset semi-automatic position.

[0034] Fig. 9B is a view similar to Fig. 9A but after the trigger has been pulled to drop the hammer.

[0035] Fig. 9C is a view similar to Fig. 9B but with the bolt carrier cycling to the rear to pivot the hammer and cam.

[0036] Fig. 9D is a view similar to Fig. 9C but with the bolt carrier having returned to battery and the hammer and trigger having returned to their set positions.

Detailed Description

[0001] With reference to the drawing figures, this section describes particular embodiments and their detailed construction and operation. Throughout the specification, reference to "one embodiment," "an embodiment," or "some embodiments" means that a particular described feature, structure, or characteristic may be included in at least one embodiment. Thus, appearances of the phrases "in one embodiment," "in an embodiment," or "in some embodiments" in various places throughout this specification are not necessarily all referring to the same embodiment. Furthermore, the described features, structures, and characteristics may be combined in any suitable manner in one or more embodiments. In view of the disclosure herein, those skilled in the art will recognize that the various embodiments can be practiced without one or more of the specific details or with other methods, components, materials, or the like. In some instances, well-known structures, materials, or operations are not shown or not described in detail to avoid obscuring aspects of the embodiments. "Forward" will indicate the direction of the muzzle and the direction in which projectiles are fired, while "rearward" will indicate the opposite direction. "Lateral" or "transverse"

indicates a side-to-side direction generally perpendicular to the axis of the barrel.

Although firearms may be used in any orientation, “left” and “right” will generally indicate the sides according to the user’s orientation, “top” or “up” will be the upward direction when the firearm is gripped in the ordinary manner.

[0037] Referring first to Figs. 1-6B, there is illustrated a “drop-in” trigger module 10 adapted for use in an AR-pattern firearm according to a first embodiment of the present invention. As used herein, “AR-pattern” firearm includes the semiautomatic versions of the AR10 and AR15 firearms and variants thereof of any caliber, including pistol caliber carbines or pistols using a blow-back bolt. While select fire (fully automatic capable) versions of this platform, such as the M16 and M4, are also AR-pattern firearms, this invention only relates to semiautomatic firearm actions. The concepts of this invention may be adaptable to other popular semiautomatic firearm platforms, such as the Ruger 10/22™, AK-pattern firearms, and HK-pattern firearms.

[0038] The module 10 includes a frame or housing 12 sized and shaped to fit within the internal fire control pocket of an AR-pattern lower receiver 14. Lower receiver parts not important to the present invention are well-known in the art and are omitted from the figures for clarity. The housing 12 includes left and right sidewalls 16, 18 which extend substantially vertically and parallel to one another in a laterally spaced-apart relationship. The sidewalls 16, 18 may be interconnected by front and rear sidewalls 20, 22. The sidewalls 16, 18 include first and second pairs of aligned openings 24, 26 for receiving hollow transverse pins 30, 32 upon which a hammer 36 and trigger member 38 pivot. The openings 24, 26 are located coaxially with openings 42, 44 in the lower receiver 14. Standard AR-pattern hammer and trigger pins 46, 48 pass through the openings 42, 44

in the lower receiver 14 and through the hollow transverse pins 30, 32 to assemble the housing 12 into the lower receiver 14. Thus, the pins 30, 32 retain the hammer 36 and trigger member 38 in the housing 12 in modular fashion, whereas the pins 46, 48 retain the trigger module 10 in the lower receiver 14.

[0039] The hammer 36 has a hammer head 50, a sear catch 52, and a hammer hook 53. The hammer 36 is spring biased towards a forward position by a standard AR-pattern hammer torsion spring (not shown).

[0040] The trigger member 38 has a trigger blade 54 that extends downwardly. The trigger blade 54 is the part of the trigger member 38 contacted by a user's finger to actuate the trigger mechanism. The trigger blade 54 may be curved (as shown) or straight, as desired. The trigger member 38 has a sear 56. When the sear 56 and the sear catch 52 are engaged, the hammer 36 and trigger member 38 are in their set positions. When the sear 56 and sear catch 52 are not engaged, the hammer 36 and trigger member 38 are in their released positions. The trigger member 38 also has a cam follower 58. The trigger member 38 is spring biased by a standard AR-pattern trigger member torsion spring (not shown) so that the trigger blade 54 is spring biased towards a forward position.

[0041] A disconnecter 60 is pivoted on the hollow transverse pin 32 upon which the trigger member 38 pivots. The disconnecter 60 has a disconnecter hook 64 and a tail 66. The tail 66 of the disconnecter 60 is spring biased upwardly away from a tail 68 of the trigger member 38 by a standard AR-pattern disconnecter compression spring 67.

[0042] A cam 72 is pivoted on a cam pin 74 that is installed in aligned openings 76 in the sidewalls 16, 18 of the housing 12. The cam 72 has a cam lobe 78 that interacts with

the cam follower 58, in a manner to be described below. The cam 72 has a first contact surface 82 on an upper forward portion thereof and a second contact surface 84 on an upper rearward portion thereof. The cam 72 has a notch 86 below the second contact surface 84 to provide clearance for the rear wall 22 of the housing 12.

[0043] An upper receiver 90 houses a bolt carrier assembly 92. As is well-known in the art, the bolt carrier assembly 92 (or blow-back bolt) slidably reciprocates in the upper receiver 90 and engages the breach of a barrel or barrel extension. As used herein, “bolt carrier” and “bolt carrier assembly” may be used interchangeably and include a blow-back type bolt used in pistol caliber carbine configurations of the AR-platform. The bolt carrier assembly 92 used with the embodiments of this invention can have either a standard mil-spec M16-pattern bolt carrier, a standard AR15-pattern bolt carrier, or some variation of the two, depending on the design of the cam 72, and whether operated by a gas direct impingement system or a gas piston system. The bolt carrier assembly 92 has an engagement surface 94 in a rear portion 96 of the bolt carrier body 98. As in an ordinary AR15-pattern configuration, during rearward travel of the bolt carrier assembly 92 a lower surface 102 in a forward portion 104 of the bolt carrier body 98 contacts the face of the hammer head 50 causing the hammer 36 to pivot rearwardly. During further rearward travel of bolt carrier assembly 92 the lower surface 102 of the bolt carrier body 98 contacts the surface 82 of the cam 72 to pivot cam 72 in a first direction from a first position to a second position. During forward travel of the bolt carrier assembly 92 the engagement surface 94 of the bolt carrier body 98 contacts the surface 84 of the cam 72 to pivot the cam 72 in a second opposite direction from the second position to the first position.

[0044] A three position safety selector 110 has safe, standard semi-automatic, and forced reset semi-automatic positions. When in the safe position (safety selector indicator 111 pointing forward), a wide semi-circular portion 112 of the safety selector 110 prevents the trigger blade 54 from being pulled (Figs. 4A and 4B). When in the standard semi-automatic position (safety selector indicator 111 pointing upward), a flat portion 114 of the safety selector 110 permits the trigger blade 54 to be pulled. The disconnecter 60 can pivot with the trigger member 38 and the disconnecter hook 64 can catch the hammer hook 53 during rearward pivoting travel of the hammer head 50. (Figs. 5A and 5B). When in the forced reset semi-automatic position (safety selector indicator 111 pointing rearward), a narrow semi-circular portion 116 permits the trigger blade 54 to be pulled but prevents the disconnecter 60 from pivoting with the trigger member 38 thus preventing the disconnecter hook 64 from catching the hammer hook 53 during rearward pivoting travel of the hammer head 50. (Figs. 6A and 6B). In other words, in the forced reset semi-automatic position, the disconnecter 60 is “disabled” in that the disconnecter hook 64 is unable to catch the hammer hook 53 during cycling of the bolt carrier assembly 92.

[0045] Referring now to Figs. 8A-8D, with the safety selector 110 set in the standard semi-automatic position, rearward finger pressure on the trigger blade 54 causes the trigger member 38 to rotate clockwise. Depending on the position of the cam 72, the cam follower 58 may or may not act upon the cam lobe 78 to further pivot the cam 72 clockwise. Rotation of the trigger member 38 causes the sear 56 to disengage from the sear catch 52 of the hammer 36. This allows the hammer 36 to drop by spring force onto the firing pin of the bolt carrier assembly 92, discharging an ammunition cartridge (not shown), and causing the action to cycle by moving the bolt carrier assembly 92 rearwardly. Rearward

travel of the bolt carrier assembly 92 causes the lower surface 102 to contact the face of the hammer head 50 and pivot the hammer 36 counter-clockwise. During pivoting travel of the hammer head 50 the disconnecter hook 64 catches the hammer hook 53. During further rearward travel of the bolt carrier assembly 92 the lower surface 102 contacts the surface 82 of the cam 72 to pivot the cam 72 counter-clockwise. As the cam 72 pivots counter-clockwise, the cam lobe 78 acts upon the cam follower 58 to pivot the trigger member 38 counter-clockwise. Forward travel of the bolt carrier assembly 92 returning to battery causes the surface 94 to contact the surface 84 of the cam 72 to pivot the cam 72 clockwise. At this point rearward finger pressure on the trigger blade 54 must be released to allow the sear 56 to engage the sear catch 52, returning the hammer 36 and trigger member 38 to their set positions. Thereafter the user can reapply rearward finger pressure on the trigger blade 54 to fire another round.

[0046] Referring now to Figs. 9A-9D, with the safety selector 110 set in the forced reset semi-automatic position, rearward finger pressure on the trigger blade 54 causes the trigger member 38 to rotate clockwise. The narrow semi-circular portion 116 of the safety selector 110 prevents the disconnecter 60 from rotating with the trigger member 38, thus “disabling” the disconnecter 60, preventing the disconnecter hook 64 from catching the hammer hook 53. Depending on the position of the cam 72, the cam follower 58 may or may not act upon the cam lobe 78 to further pivot the cam 72 clockwise. Rotation of the trigger member 38 causes the sear 56 to disengage from the sear catch 52 of the hammer 36. This allows the hammer 36 to drop by spring force onto the firing pin of the bolt carrier assembly 92, discharging an ammunition cartridge, and causing the action to cycle by moving the bolt carrier assembly 92 rearwardly. Rearward travel of the

bolt carrier assembly 92 causes the lower surface 102 to contact the face of the hammer head 50 and pivot the hammer 36 counter-clockwise. During further rearward travel of the bolt carrier assembly 92 the lower surface 102 contacts the surface 82 of the cam 72 to pivot the cam 72 counter-clockwise. As the cam 72 pivots counter-clockwise, the cam lobe 78 acts upon the cam follower 58 to pivot trigger member 38 counter-clockwise. The cam 72 thereby forces the hammer 36 and trigger member 38 to their set positions wherein the sear 56 engages the sear catch 52. Forward travel of the bolt carrier assembly 92 returning to battery causes the surface 94 to contact the surface 84 of the cam 72 to pivot the cam 72 clockwise. At this point the user can reapply rearward finger pressure on the trigger blade 54 to fire another round, without first manually releasing rear finger pressure on the trigger blade 54.

[0047] While various embodiments of the present invention have been described in detail, it should be apparent that modifications and variations thereto are possible, all of which fall within the true spirit and scope of the invention. Therefore, the foregoing is intended only to be illustrative of the principles of the invention. The invention resides in each individual feature described herein, alone, and in any and all combinations and subcombinations of any and all of those features. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not intended to limit the invention to the exact construction and operation shown and described. Accordingly, all suitable modifications and equivalents may be included and considered to fall within the scope of the invention, defined by the following claim or claims.

WHAT IS CLAIMED IS:

1. For a firearm having a receiver with a fire control mechanism pocket, transversely aligned pairs of hammer and trigger pin openings in the pocket, and a bolt carrier that reciprocates, a trigger mechanism comprising:

a hammer having a sear catch and a hook for engaging a disconnector and mounted in the fire control mechanism pocket to pivot on a transverse hammer pin between set and released positions,

a trigger member having a sear and mounted in the fire control mechanism pocket to pivot on a transverse trigger pin between set and released positions,

wherein the sear and sear catch are in engagement in the set positions of the hammer and trigger member and are out of engagement in the released positions of the hammer and trigger,

a disconnector having a hook for engaging the hammer and mounted in the fire control mechanism pocket to pivot on the transverse trigger pin,

a cam having a cam lobe and mounted in the fire control mechanism pocket to pivot on a transverse cam pin, the cam being pivotable between a first position at which the cam lobe does not force the trigger member towards the set position and a second position at which the cam lobe does force the trigger member towards the set position, and

a safety selector mounted in the fire control mechanism pocket to pivot between safe, standard semi-automatic, and forced reset semi-automatic positions,

whereupon in the standard semi-automatic position, rearward movement of the bolt carrier causes rearward pivoting of the hammer and pivoting of the cam from the first position to the second position such that the cam lobe forces the trigger member towards the set position but prior to reaching the set position the disconnecter hook catches the hammer hook, and thereafter forward movement of the bolt carrier causes the cam to pivot to the first position, at which time a user must manually release the trigger member to free the hammer from the disconnecter to permit the hammer and trigger member to pivot to their set positions so that the user can pull the trigger member to fire the firearm, and

whereupon in the forced reset semi-automatic position, rearward movement of the bolt carrier causes rearward pivoting of the hammer and pivoting of the cam from the first position to the second position such that the cam lobe forces the trigger member to the set position, the safety selector preventing the disconnecter hook from catching the hammer hook, and thereafter forward movement of the bolt carrier causes the cam to pivot to the first position, at which time the user can pull the trigger member to fire the firearm without manually releasing the trigger member.

2. The trigger mechanism of claim 1, wherein the safety selector has a protuberance thereon which, when the safety selector is in the forced reset semi-automatic position, contacts the disconnecter preventing the disconnecter hook from catching the hammer hook.

3. For a firearm having a receiver with a fire control mechanism pocket, assembly pin openings in the pocket, and a bolt carrier that reciprocates, a trigger mechanism comprising:

a housing having transversely aligned pairs of openings for receiving hammer and trigger pins;

a hammer having a sear catch and a hook for engaging a disconnector and mounted in the housing to pivot on a transverse axis between set and released positions;

a trigger member having a sear and mounted in the housing to pivot on a transverse axis between set and released positions,

wherein the sear and sear catch are in engagement in the set positions of the hammer and trigger member and are out of engagement in the released positions of the hammer and trigger,

a disconnector having a hook for engaging the hammer and mounted in the housing to pivot on the trigger member transverse axis,

a cam having a cam lobe and mounted in the housing to pivot on a transverse cam pin, the cam being pivotable between a first position at which the cam lobe does not force the trigger member towards the set position and a second position at which the cam lobe does force the trigger member towards the set position, and

a safety selector mounted in the housing to pivot between safe, standard semi-automatic, and forced reset semi-automatic positions,

whereupon in the standard semi-automatic position, rearward movement of the bolt carrier causes rearward pivoting of the hammer and pivoting of the cam from the first position to the second position such that the cam lobe forces the trigger member towards

the set position but prior to reaching the set position the disconnecter hook catches the hammer hook, and thereafter forward movement of the bolt carrier causes the cam to pivot to the first position, at which time a user must manually release the trigger member to free the hammer from the disconnecter to permit the hammer and trigger member to pivot to their set positions so that the user can pull the trigger member to fire the firearm, and

whereupon in the forced reset semi-automatic position, rearward movement of the bolt carrier causes rearward pivoting of the hammer and pivoting of the cam from the first position to the second position such that the cam lobe forces the trigger member to the set position, the safety selector preventing the disconnecter hook from catching the hammer hook, and thereafter forward movement of the bolt carrier causes the cam to pivot to the first position, at which time the user can pull the trigger member to fire the firearm without manually releasing the trigger member.

4. The trigger mechanism of claim 3, wherein the safety selector has a protuberance thereon which, when the safety selector is in the forced reset semi-automatic position, contacts the disconnecter preventing the disconnecter hook from catching the hammer hook.

5. The trigger mechanism of claim 3, wherein the transversely aligned pairs of openings in the housing for receiving hammer and trigger pins are aligned with the assembly pin openings in the fire control mechanism pocket of the receiver.

Abstract

[0048] A trigger mechanism that can be used in AR-pattern firearms has a hammer, a trigger member, a disconnecter, a cam, and a “three position” safety selector having safe, standard semi-automatic, and forced reset semi-automatic positions. In the standard semi-automatic position, rearward movement of the bolt carrier causes rearward pivoting of the hammer and pivoting of the cam from a first position to a second position such that a cam lobe forces the trigger member towards the set position, but prior to reaching the set position the disconnecter hook catches the hammer hook, at which time a user must manually release the trigger member to free the hammer from the disconnecter to permit the hammer and trigger member to pivot to their set positions so that the user can pull the trigger member to fire the firearm. In the forced reset semi-automatic position, rearward movement of the bolt carrier causes rearward pivoting of the hammer and pivoting of the cam from the first position to the second position such that the cam lobe forces the trigger member to the set position, the safety selector preventing the disconnecter hook from catching the hammer hook, at which time the user can pull the trigger member to fire the firearm without manually releasing the trigger member.

3861403.2

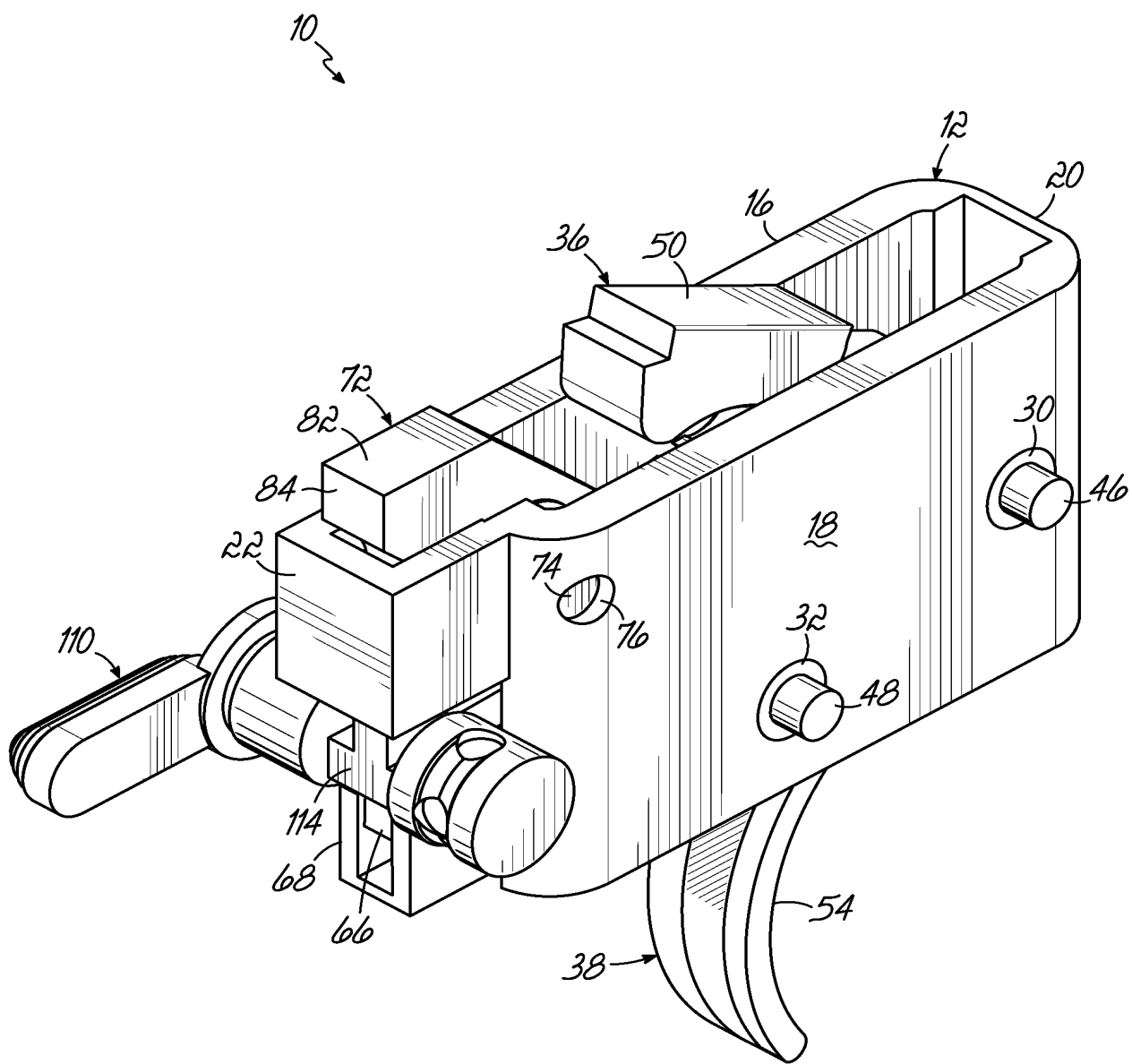


FIG. 2

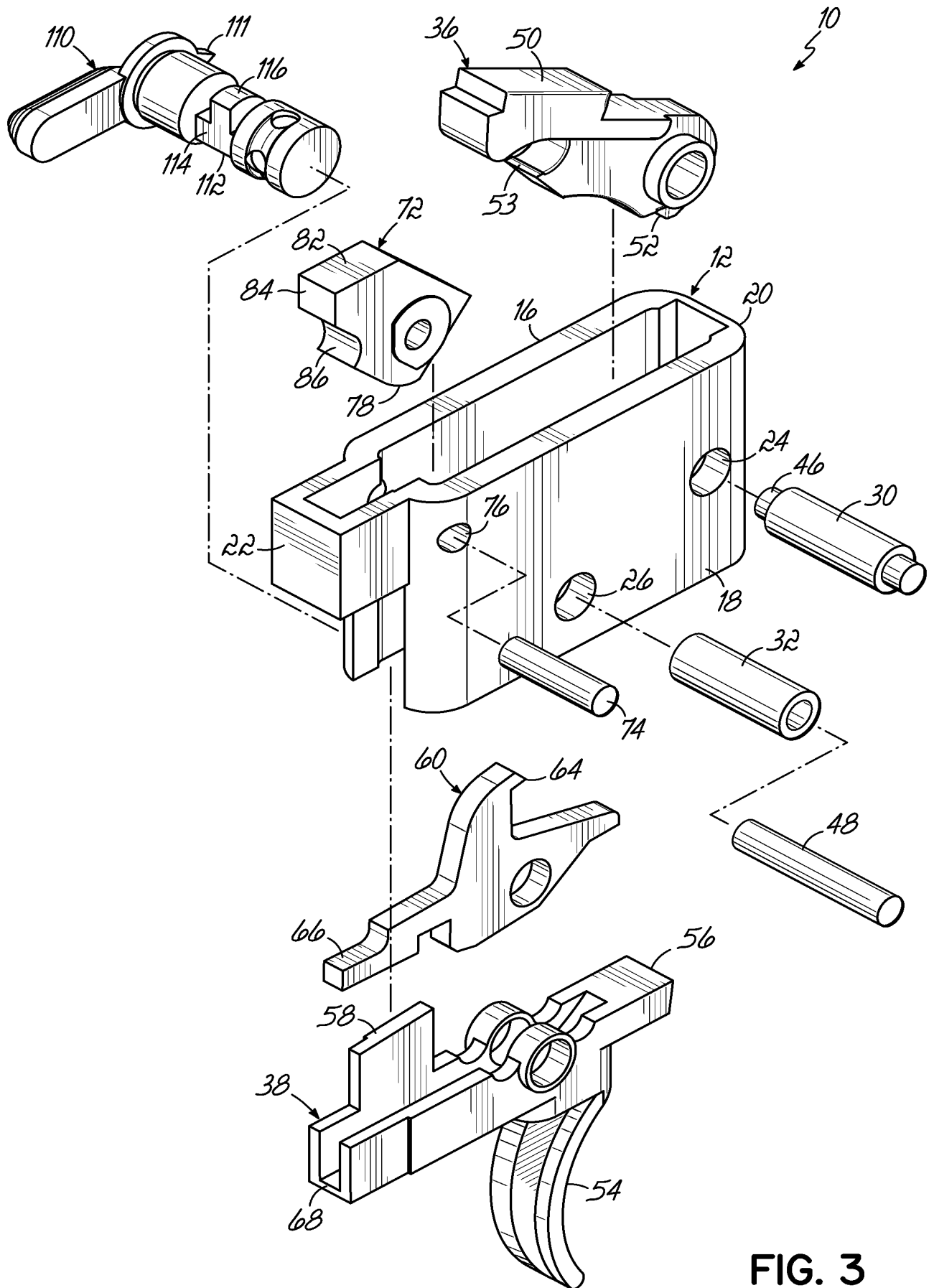


FIG. 3

Atrius Ex. 1003-0037

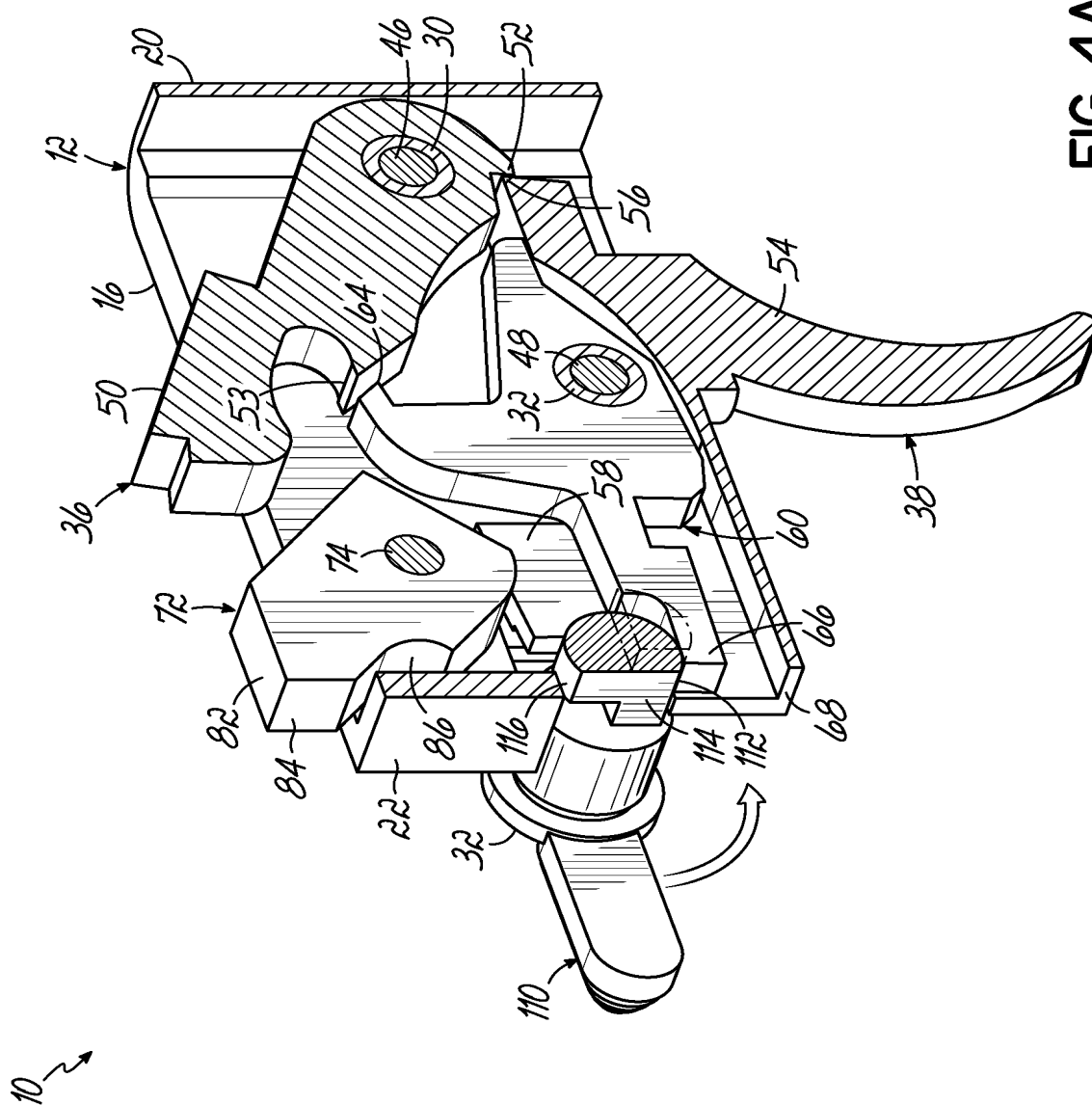


FIG. 4A

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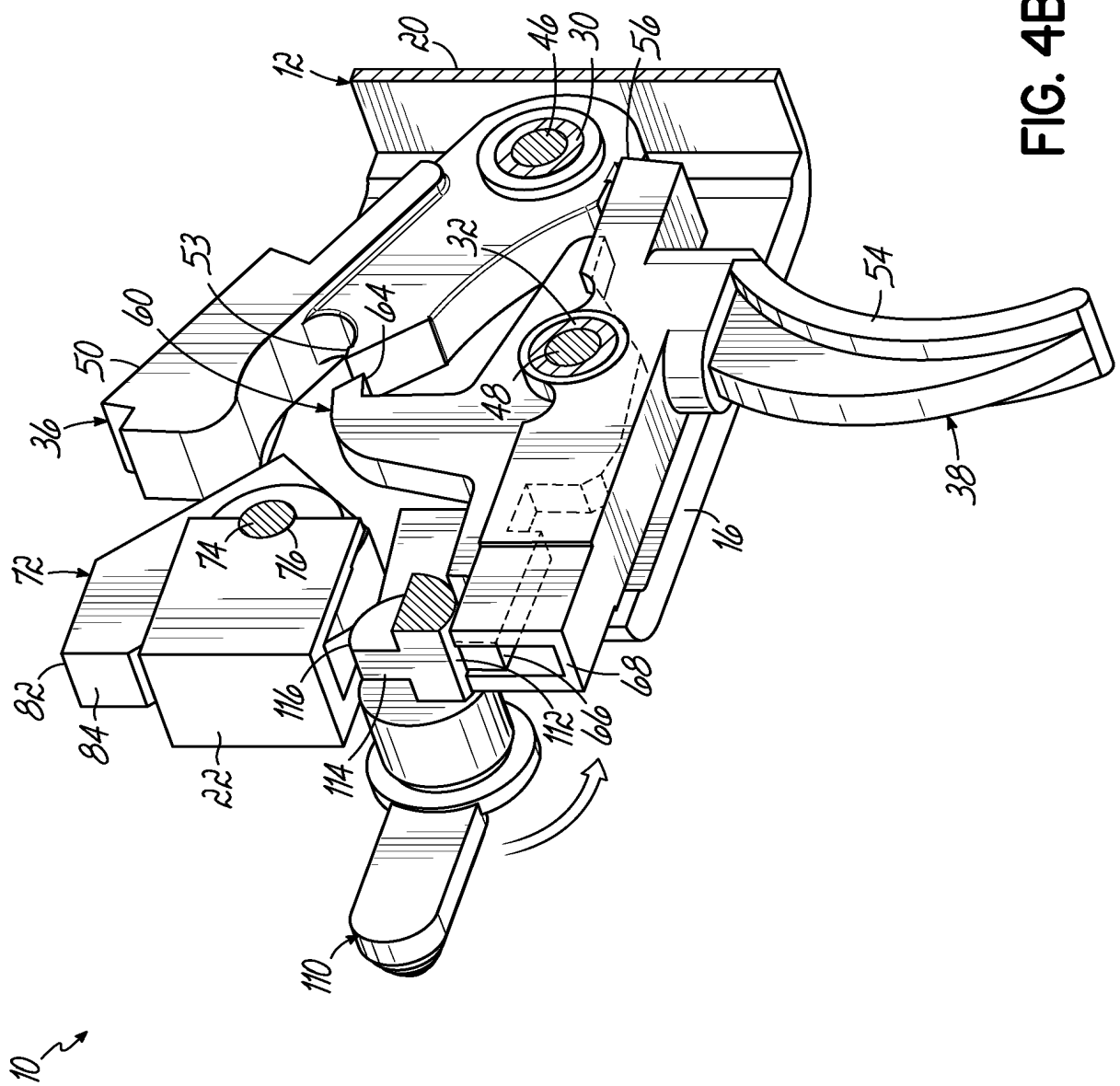


FIG. 4B

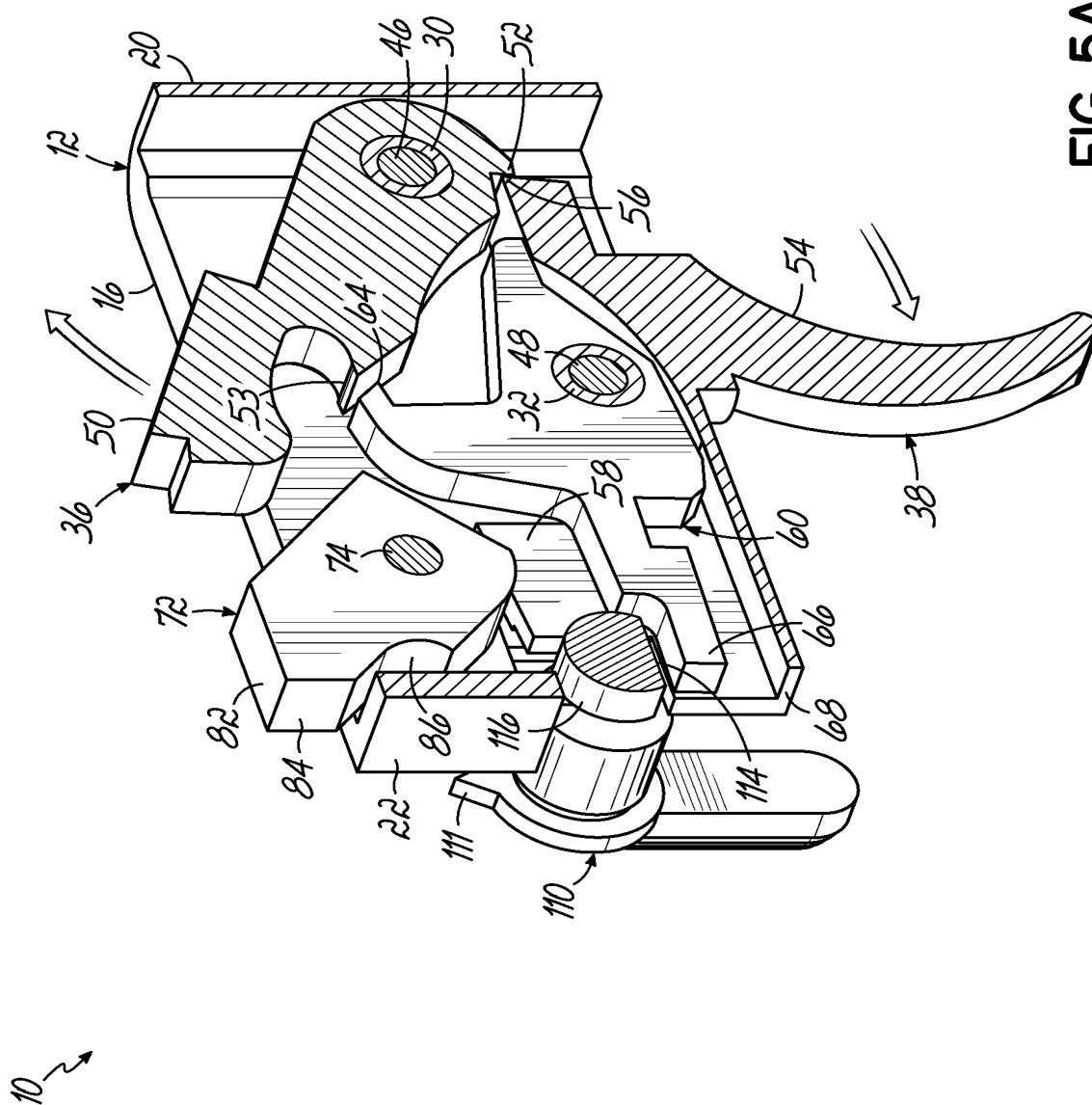
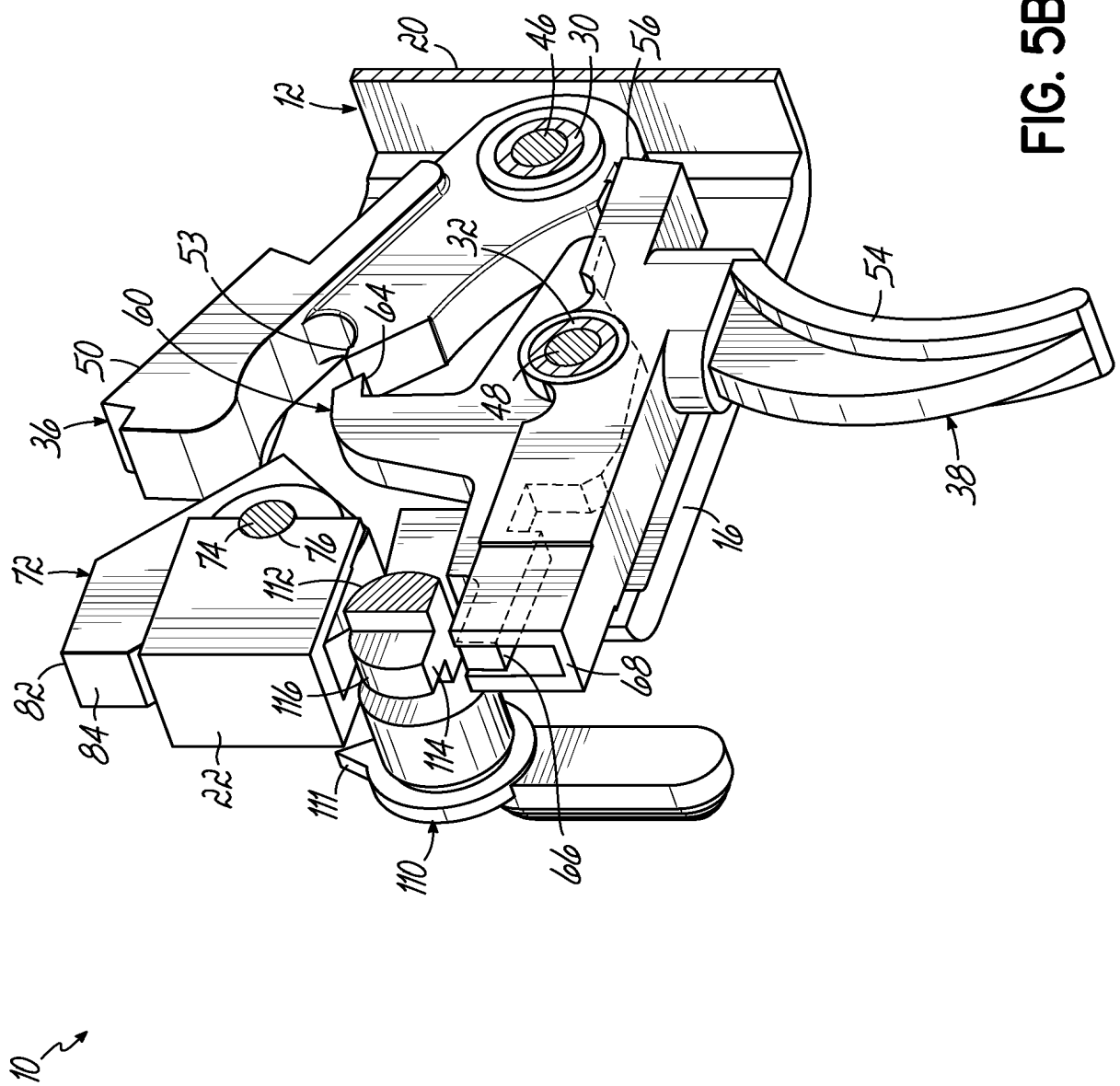


FIG. 5A



Atrius Ex. 1003-0041

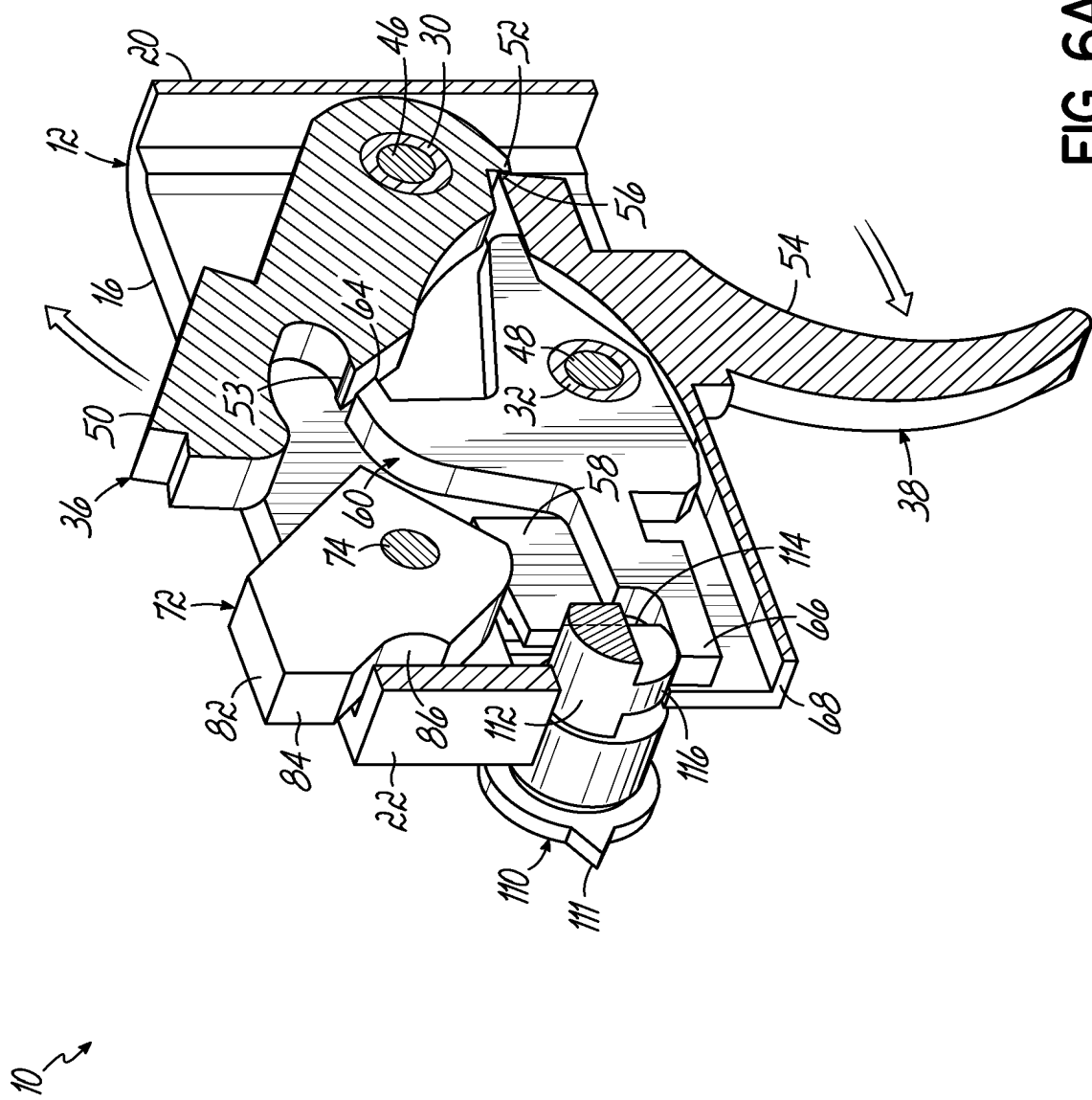


FIG. 6A

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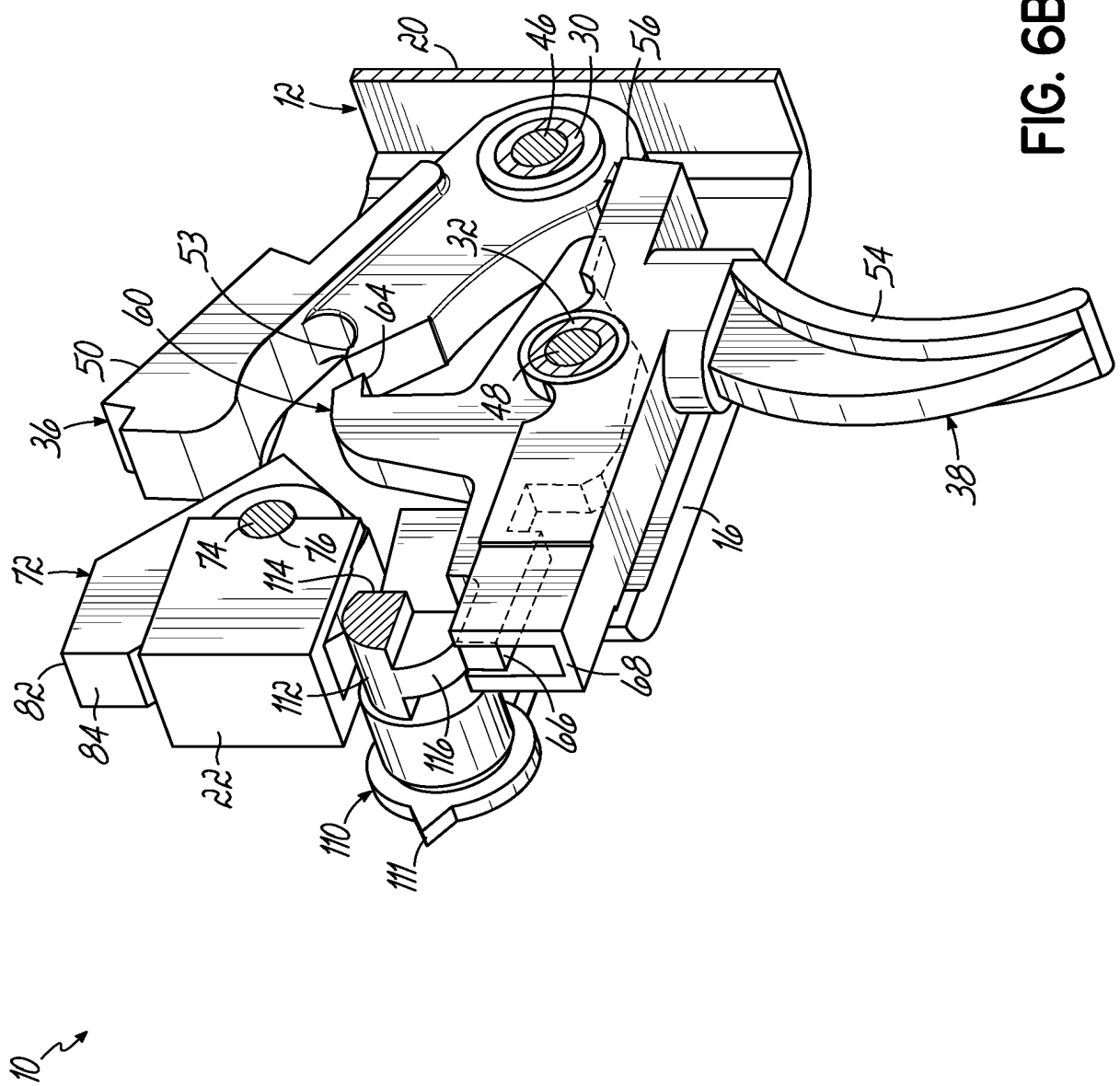


FIG. 6B

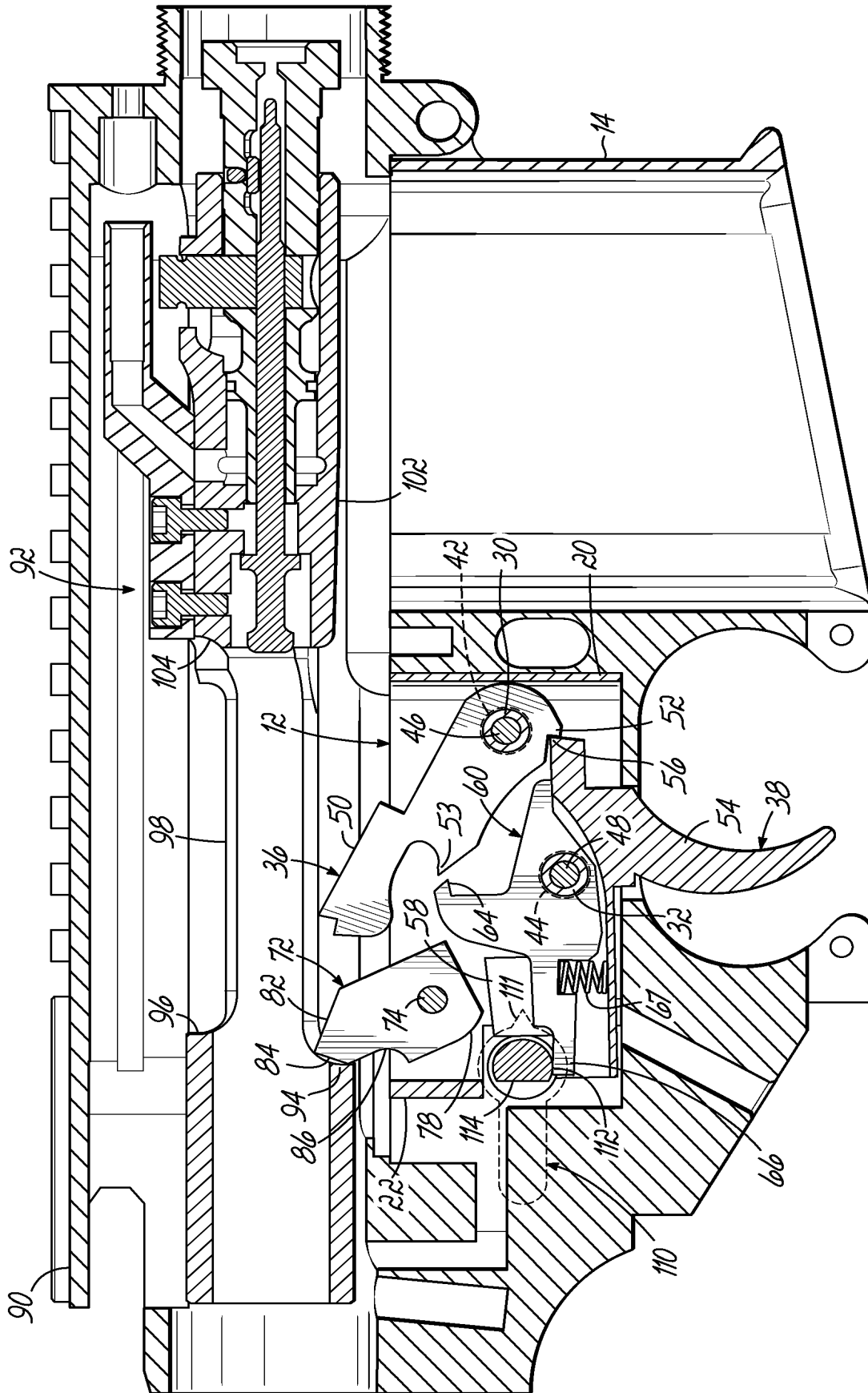


FIG. 7

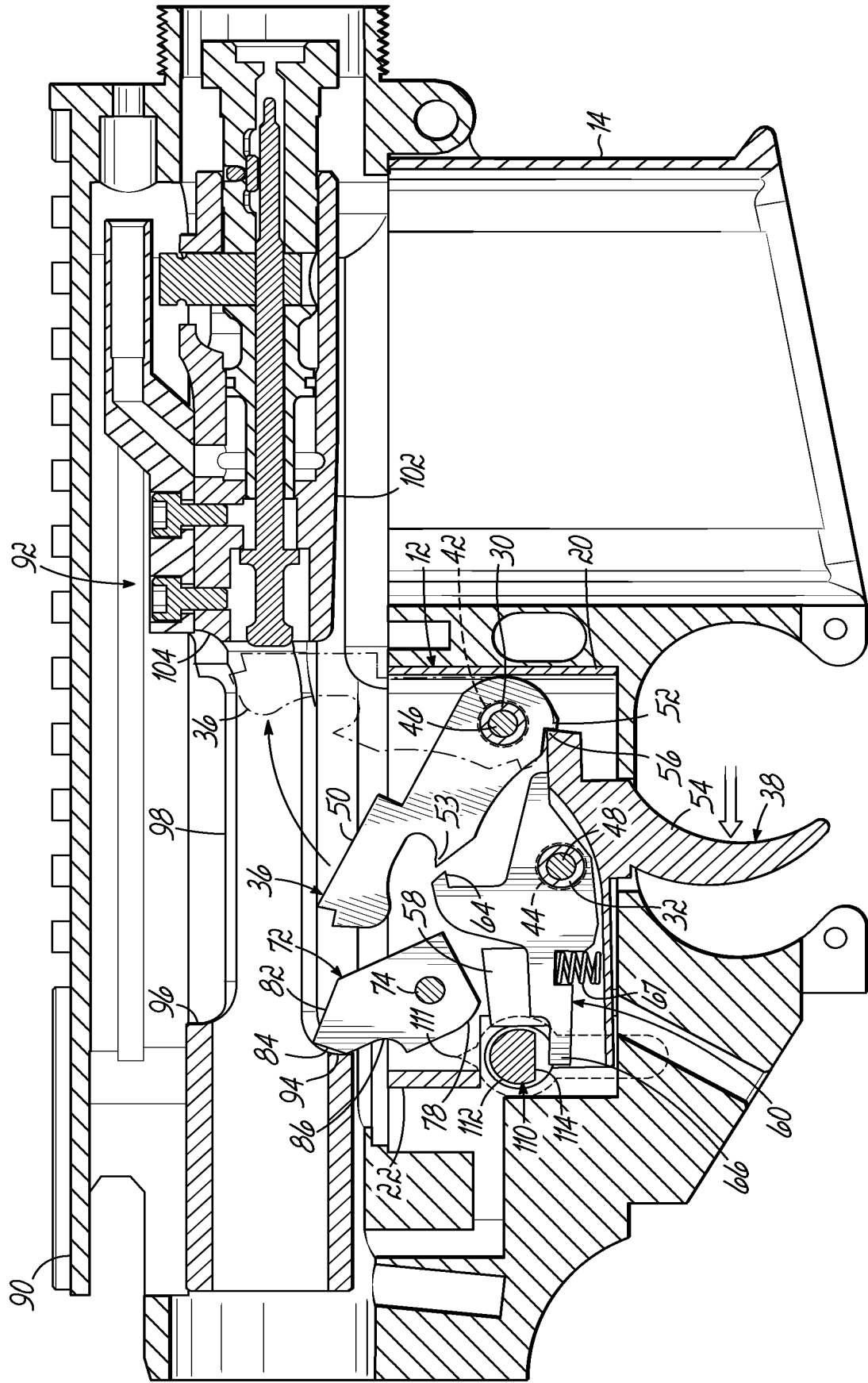


FIG. 8A

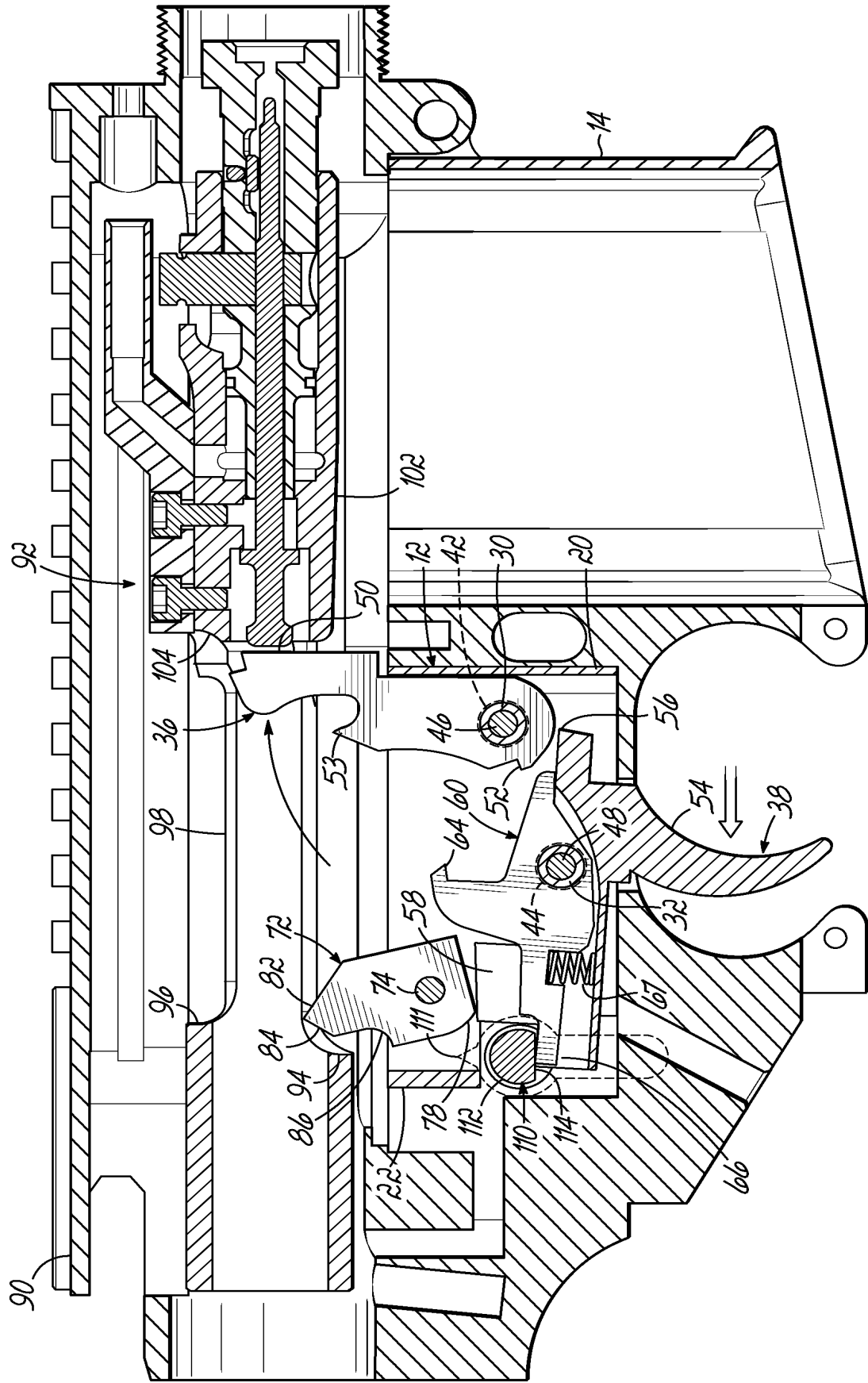


FIG. 8B

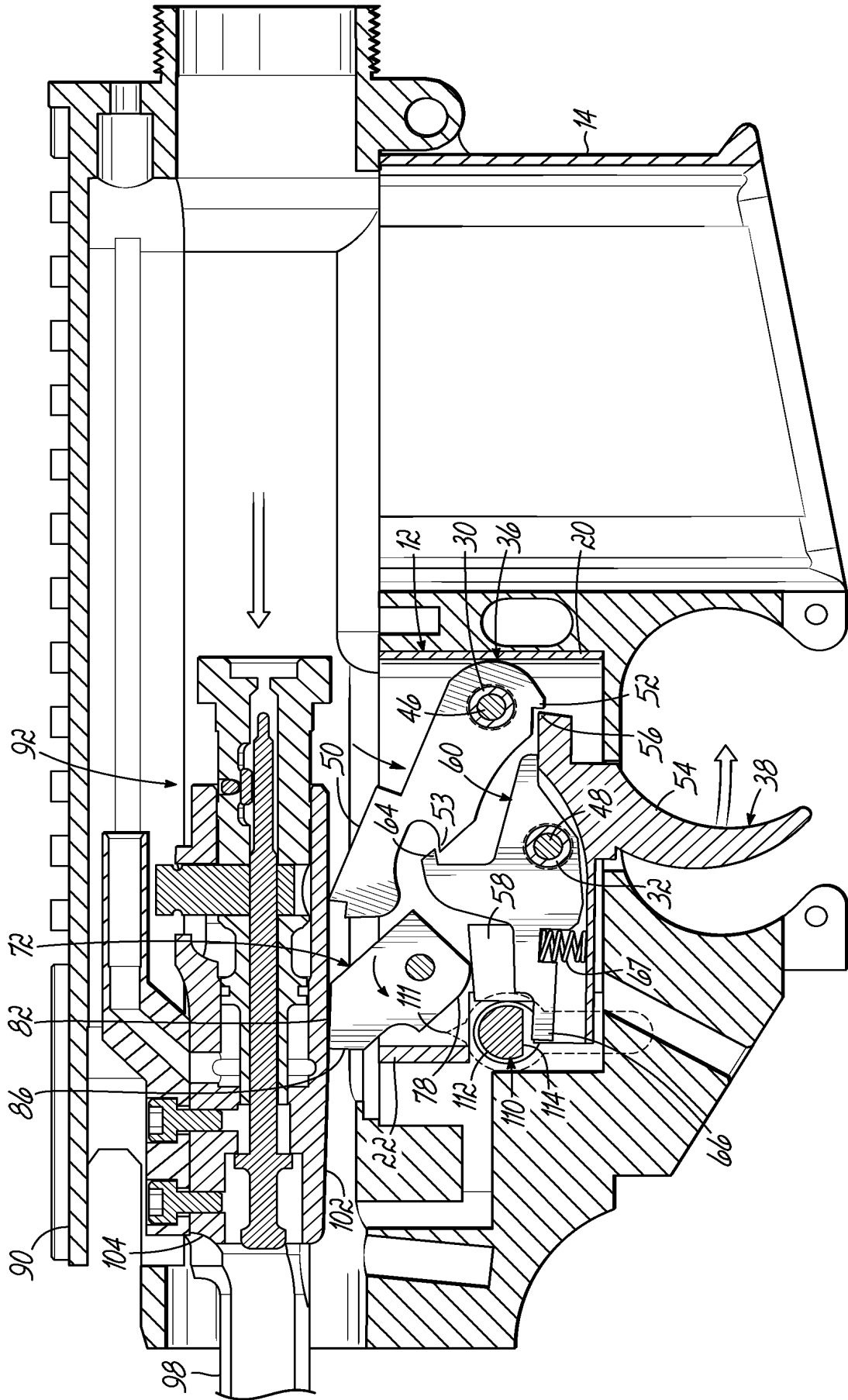


FIG. 8C

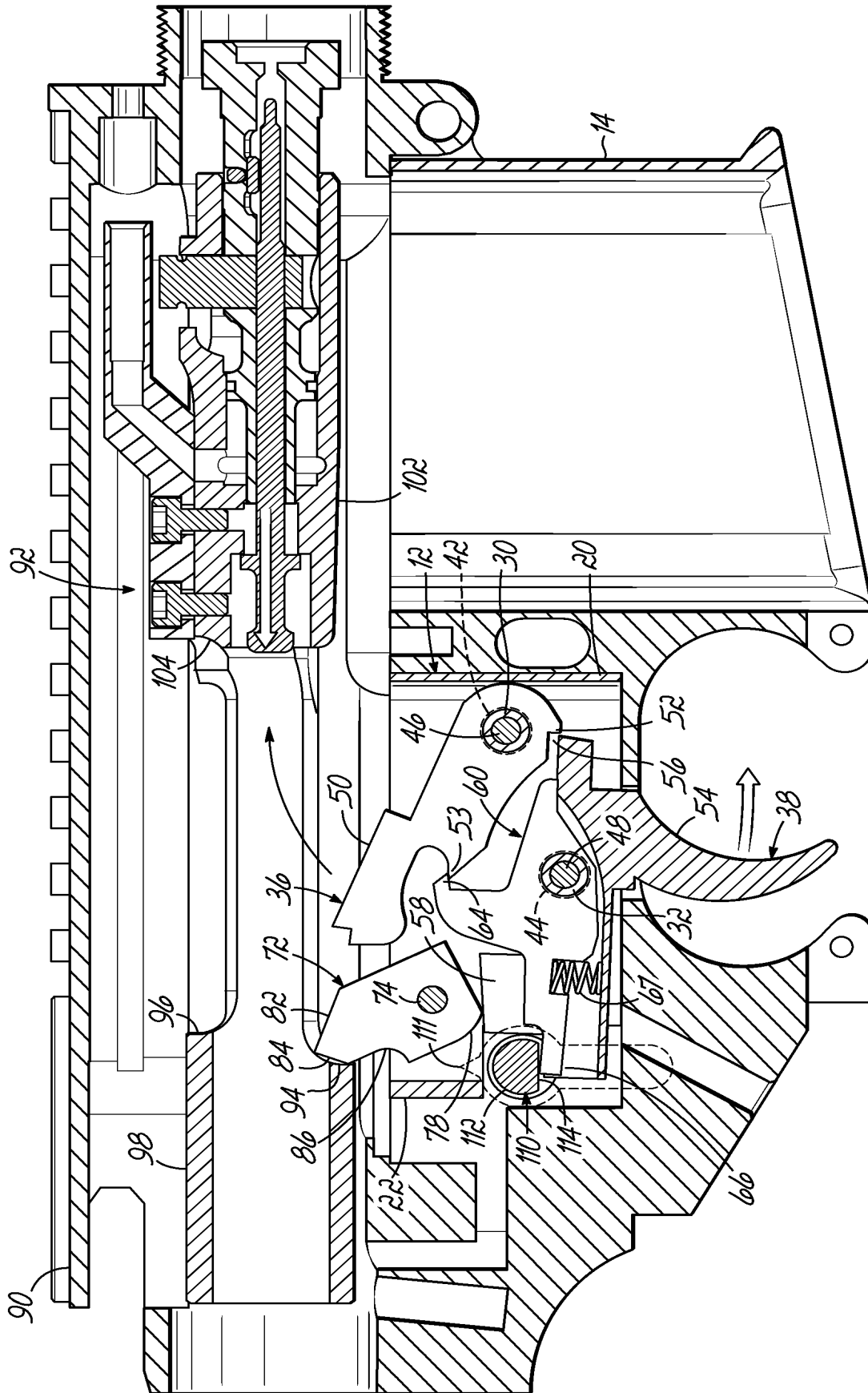


FIG. 8D

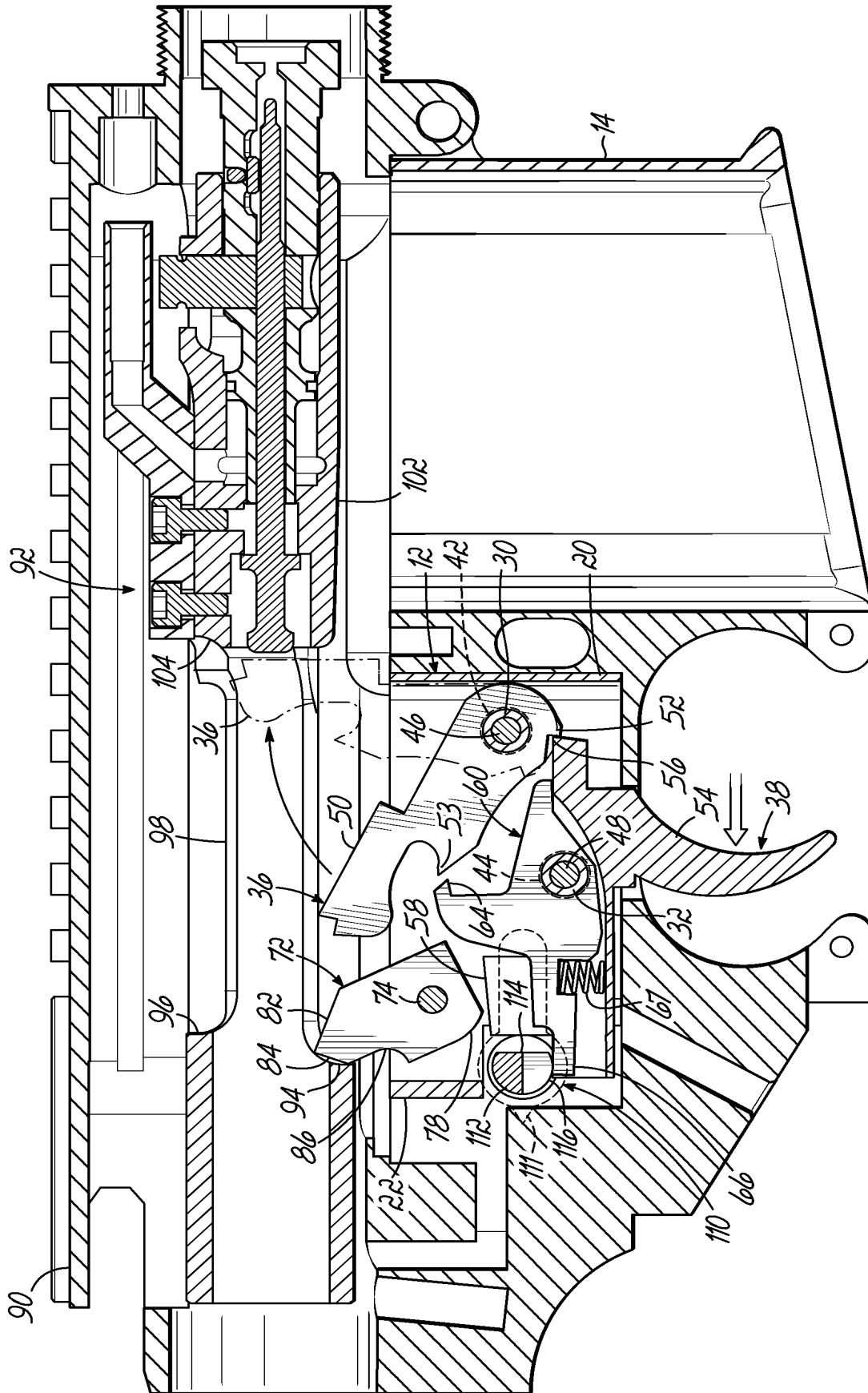


FIG. 9A

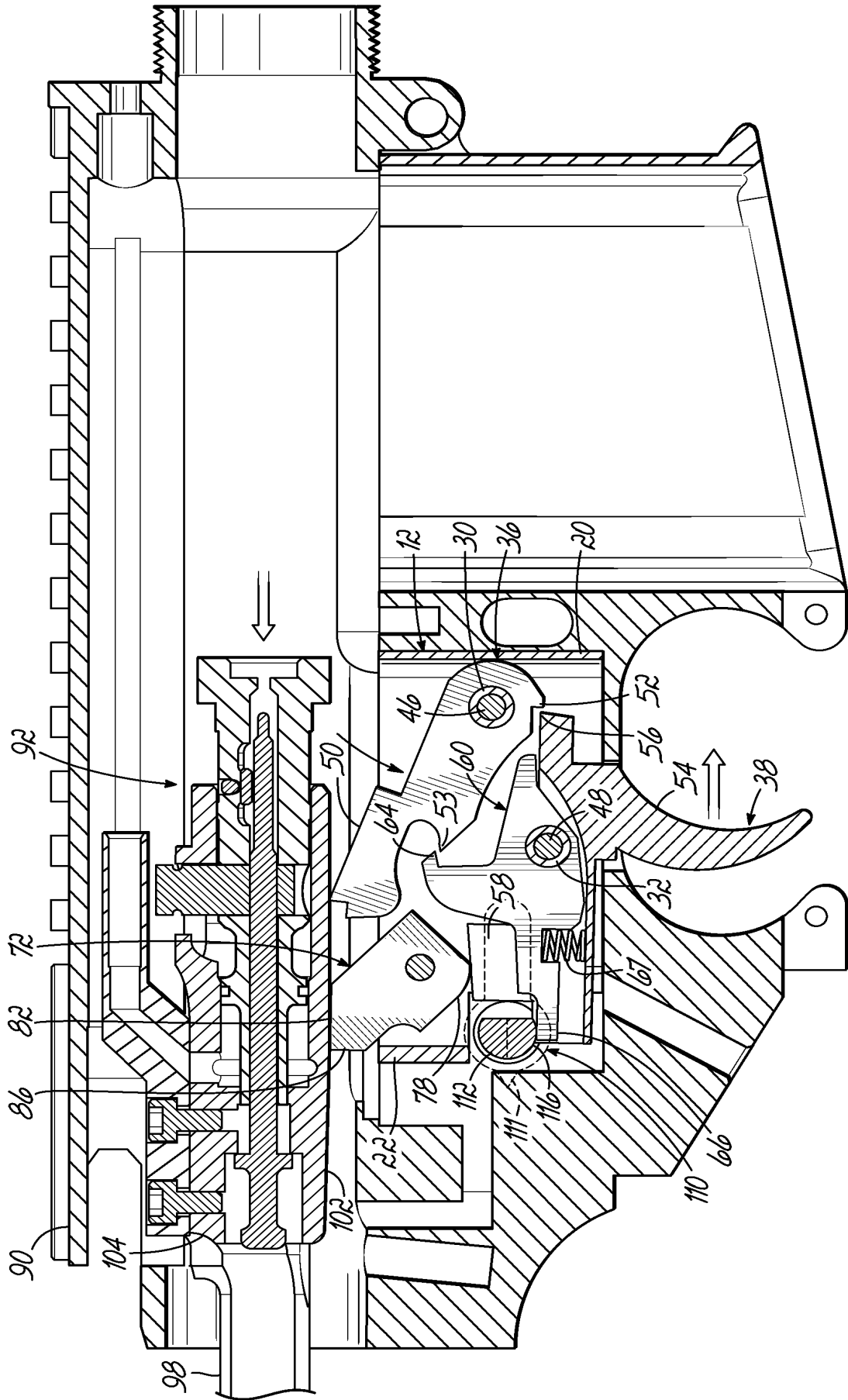


FIG. 9C

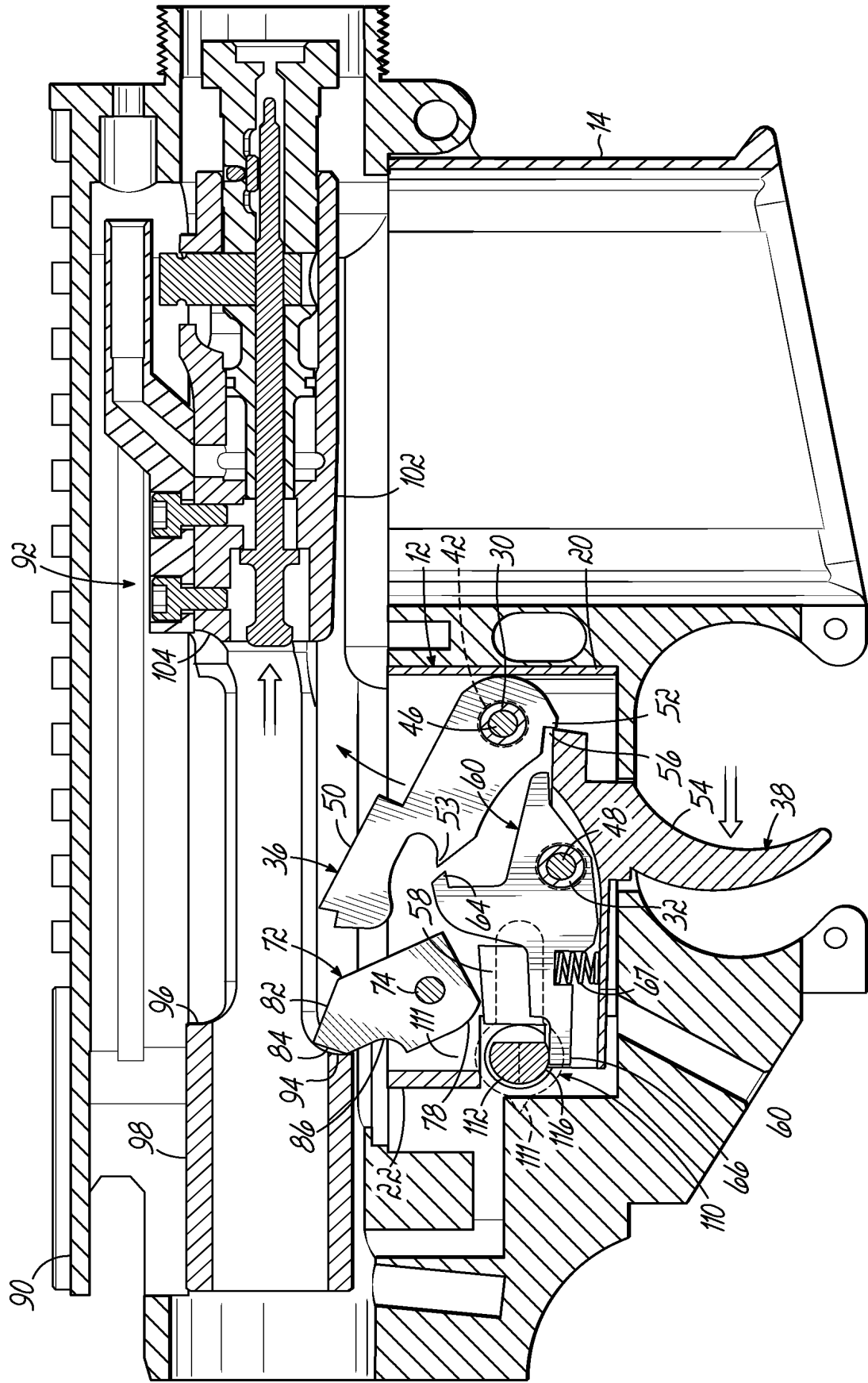


FIG. 9D

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	RARETRG 12
		Application Number	
Title of Invention	FIREARM TRIGGER MECHANISM		
<p>The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.</p> <p>This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.</p>			

Secrecy Order 37 CFR 5.2:

☐	Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)
--------------------------	---

Inventor Information:

Inventor	1				Remove	
Legal Name						
Prefix	Given Name	Middle Name	Family Name	Suffix		
Mr. <input type="button" value="v"/>	Brian	A.	Blakley	<input type="button" value="v"/>		
Residence Information (Select One) • US Residency Non US Residency Active US Military Service						
City	Pinellas Park	State/Province	FL	Country of Residence	US	
Mailing Address of Inventor:						
Address 1	8 The Green, Suite A					
Address 2						
City	Dover	State/Province	DE			
Postal Code	19901	Country	US			
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button. Add						

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).			
☐ An Address is being provided for the correspondence information of this application.			
Customer Number	26875		
Email Address	usptodock@whe-law.com	Add Email	Remove Email

Application Information:

Title of the Invention	FIREARM TRIGGER MECHANISM		
Attorney Docket Number	RARETRG 12	Small Entity Status Claimed	☒
Application Type	Provisional <input type="button" value="v"/>		
Subject Matter	Utility <input type="button" value="v"/>		
Total Number of Drawing Sheets (if any)	18	Suggested Figure for Publication (if any)	

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	RARETRG 12
		Application Number	
Title of Invention	FIREARM TRIGGER MECHANISM		

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not be** the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	☒ Customer Number	US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)
Customer Number	26875		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.

When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	<div></div>	<div>Remove</div>	
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
<div></div>	<div></div>		
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.			

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	RARETRG 12
		Application Number	
Title of Invention	FIREARM TRIGGER MECHANISM		

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)ⁱ the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	Access Code ⁱ (if applicable)

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button.

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.

NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	RARETRG 12
	Application Number	
Title of Invention	FIREARM TRIGGER MECHANISM	

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	RARETRG 12
		Application Number	
Title of Invention	FIREARM TRIGGER MECHANISM		

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant	1	Remove
<p>If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.</p> <p style="text-align: right;">Clear</p>		
☒ Assignee	Legal Representative under 35 U.S.C. 117	Joint Inventor
Person to whom the inventor is obligated to assign.		Person who shows sufficient proprietary interest
If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:		
<div style="border: 1px solid black; height: 20px; width: 100%;"></div>		
Name of the Deceased or Legally Incapacitated Inventor: <div style="border: 1px solid black; height: 20px; width: 100%;"></div>		
If the Applicant is an Organization check here. ☒		
Organization Name	ABC IP, LLC	
Mailing Address Information For Applicant:		
Address 1	8 The Green, Suite A	
Address 2		
City	Dover	State/Province DE
Country	US	Postal Code 19901
Phone Number		Fax Number
Email Address		
Additional Applicant Data may be generated within this form by selecting the Add button. Add		

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	RARETRG 12
		Application Number	
Title of Invention	FIREARM TRIGGER MECHANISM		

Assignee 1				
Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.				
<div>Remove</div>				
If the Assignee or Non-Applicant Assignee is an Organization check here. ☐				
Prefix	Given Name	Middle Name	Family Name	Suffix
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Mailing Address Information For Assignee including Non-Applicant Assignee:				
Address 1		<input type="text"/>		
Address 2		<input type="text"/>		
City	<input type="text"/>	State/Province	<input type="text"/>	
Country ⁱ	<input type="text"/>	Postal Code	<input type="text"/>	
Phone Number	<input type="text"/>	Fax Number	<input type="text"/>	
Email Address	<input type="text"/>			
Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button. <div>Add</div>				

Signature:

Remove

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). However, if this Application Data Sheet is submitted with the **INITIAL** filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Wayne L. Jacobs/		Date (YYYY-MM-DD)	2022-09-08	
First Name	Wayne	Last Name	Jacobs	Registration Number	35,553
Additional Signature may be generated within this form by selecting the Add button. <div>Add</div>					

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	RARETRG 12
		Application Number	
Title of Invention	FIREARM TRIGGER MECHANISM		

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.



UNITED STATES
PATENT AND TRADEMARK OFFICE

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ELECTRONIC PAYMENT RECEIPT

APPLICATION #
63/374,941

RECEIPT DATE / TIME
09/08/2022 01:28:34 PM ET

ATTORNEY DOCKET #
RARETRG 12

Title of Invention

FIREARM TRIGGER MECHANISM

Application Information

APPLICATION TYPE Utility - Provisional Application under
35 USC 111(b)

PATENT # -

CONFIRMATION # 2714

FILED BY Jane Walker

PATENT CENTER # 60949123

AUTHORIZED BY Glenn Bellamy

CUSTOMER # 26875

FILING DATE -

CORRESPONDENCE
ADDRESS -

FIRST NAMED
INVENTOR Brian A. Blakley

Payment Information

PAYMENT METHOD
DA / 233000

PAYMENT TRANSACTION ID
E202298D32322772

PAYMENT AUTHORIZED BY
Jane Walker

FEE CODE	DESCRIPTION	ITEM PRICE(\$)	QUANTITY	ITEM TOTAL(\$)
2005	PROVISIONAL APPLICATION FILING FEE	150.00	1	150.00
TOTAL AMOUNT:				\$150.00

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.



ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #
63/374,941

RECEIPT DATE / TIME
09/08/2022 01:28:34 PM ET

ATTORNEY DOCKET #
RARETRG 12

Title of Invention

FIREARM TRIGGER MECHANISM

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FILED BY Jane Walker

PATENT CENTER # 60949123

FILING DATE -

CUSTOMER # 26875

FIRST NAMED INVENTOR Brian A. Blakley

CORRESPONDENCE ADDRESS -

AUTHORIZED BY Glenn Bellamy

Documents

TOTAL DOCUMENTS: 7

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
RARETRG 12 - Application Data Sheet Fillable PDF.pdf	8	Application Data Sheet	2179 KB
Drawings.PDF	18	Drawings-only black and white line drawings	1459 KB
RARETRG- 12_Executed_POA.PDF	2	Power of Attorney	554 KB
RARETRG12- Excuted_Declaration- Assignment_Blakley.PDF	2	Oath or Declaration filed	1265 KB
Specification.pdf	21	-	72 KB

Specification-SPEC.pdf	(1-16)	16	Specification	57 KB
Specification-CLM.pdf	(17-20)	4	Claims	21 KB
Specification-ABST.pdf	(21-21)	1	Abstract	15 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
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Specification-ABST.pdf

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.