Oct. 20, 1964 H. D. ALLYN 3,153,295

RECEIVER-BARREL ASSEMBLY WITH STOCK AND TRIGGER HOUSING

Original Filed May 19, 1959 5 Sheets-Sheet 1

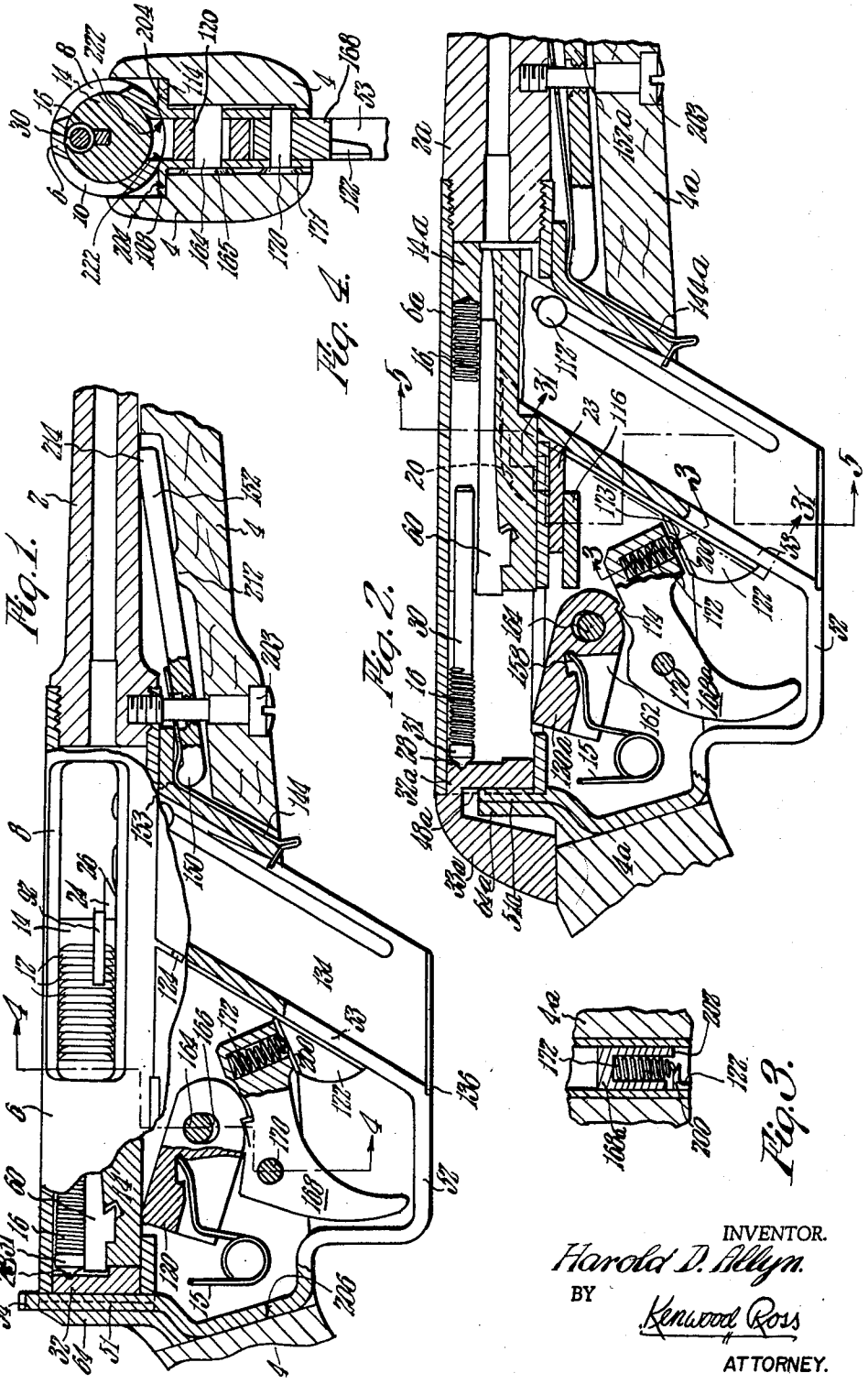


Fig. 4.

Fig. 2.

Fig. 1.

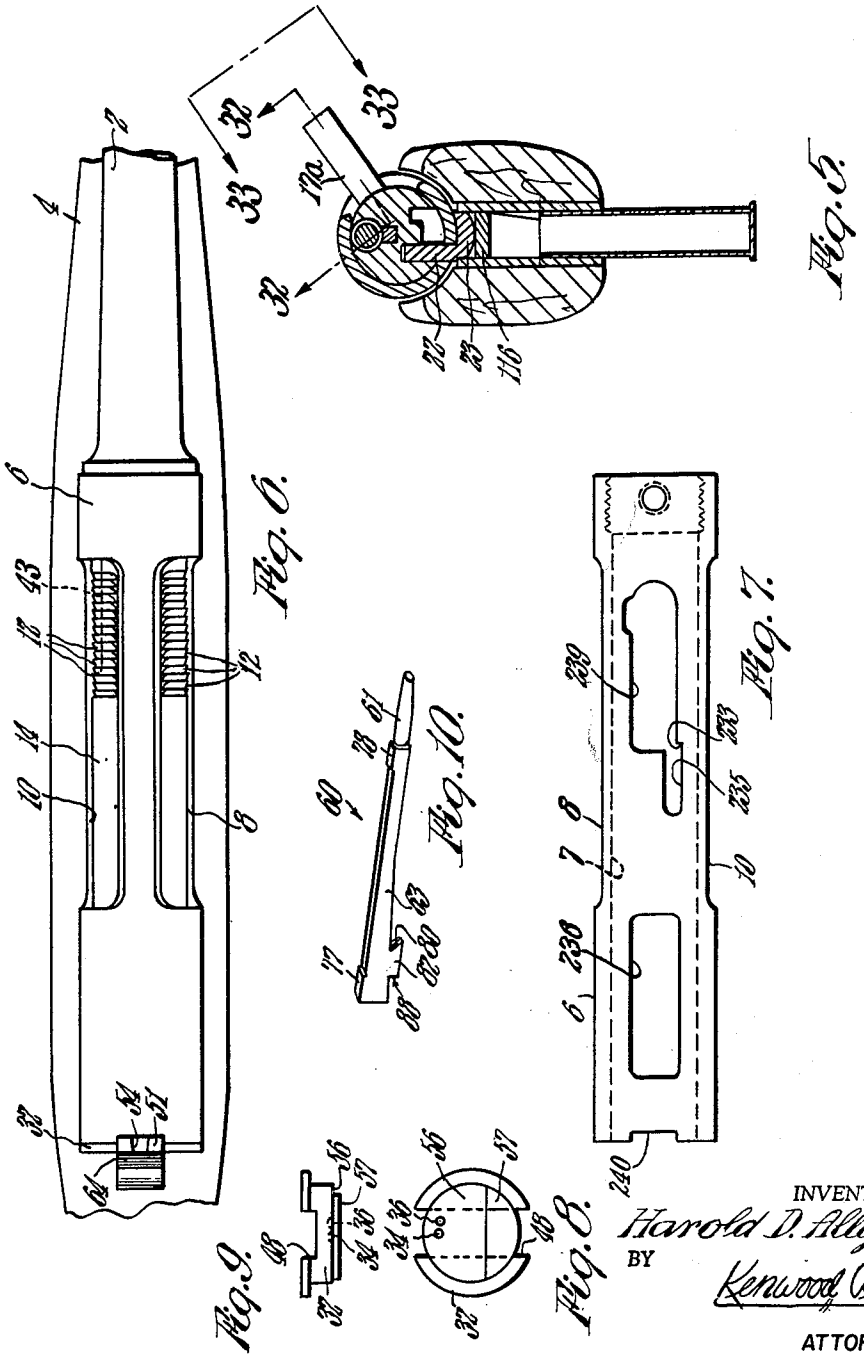
Fig. 3.

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RECEIVER-BARREL ASSEMBLY WITH STOCK AND TRIGGER HOUSING

Original Filed May 19, 1959 5 Sheets-Sheet 2

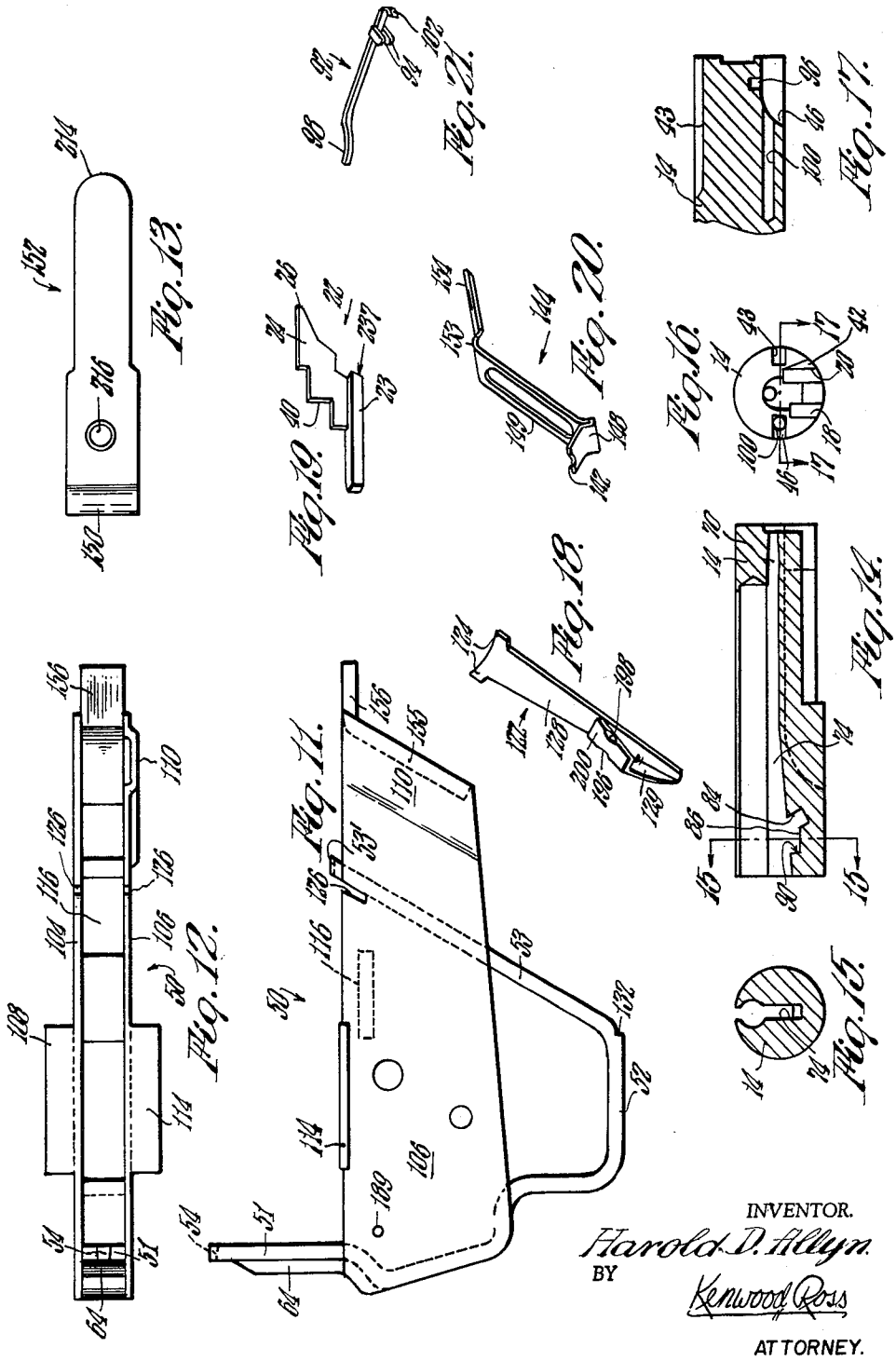


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RECEIVER-BARREL ASSEMBLY WITH STOCK AND TRIGGER HOUSING

Original Filed May 19, 1959 5 Sheets-Sheet 3



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RECEIVER-BARREL ASSEMBLY WITH STOCK AND TRIGGER HOUSING

Original Filed May 19, 1959 5 Sheets-Sheet 4

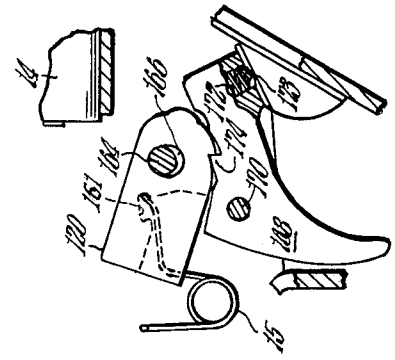


Fig. 26.

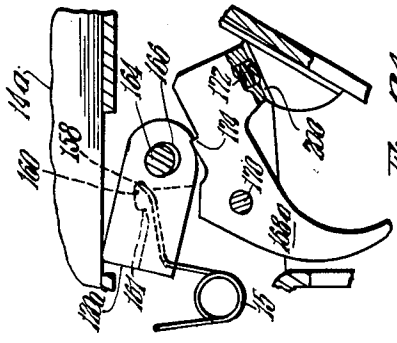


Fig. 24.

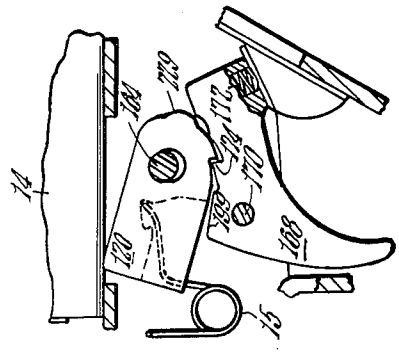


Fig. 27.

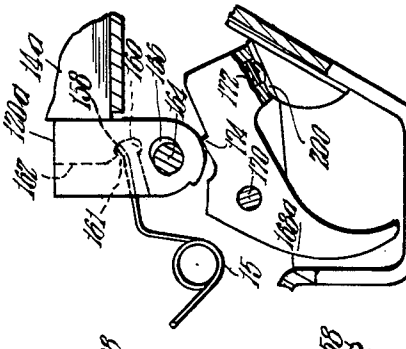


Fig. 23.

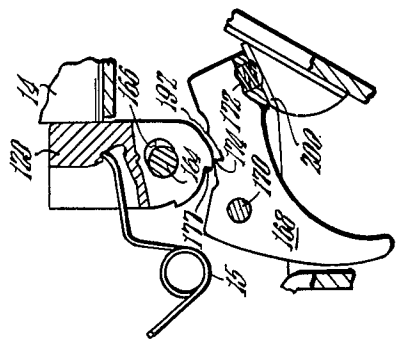


Fig. 28.

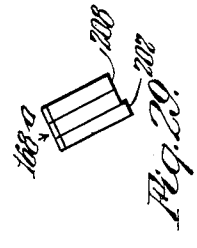


Fig. 29.

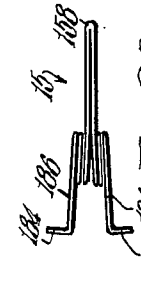


Fig. 30.

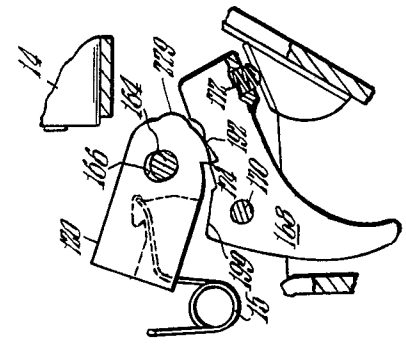


Fig. 25.

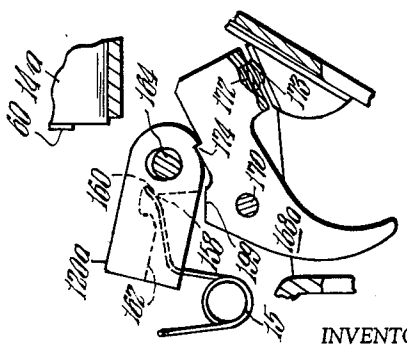


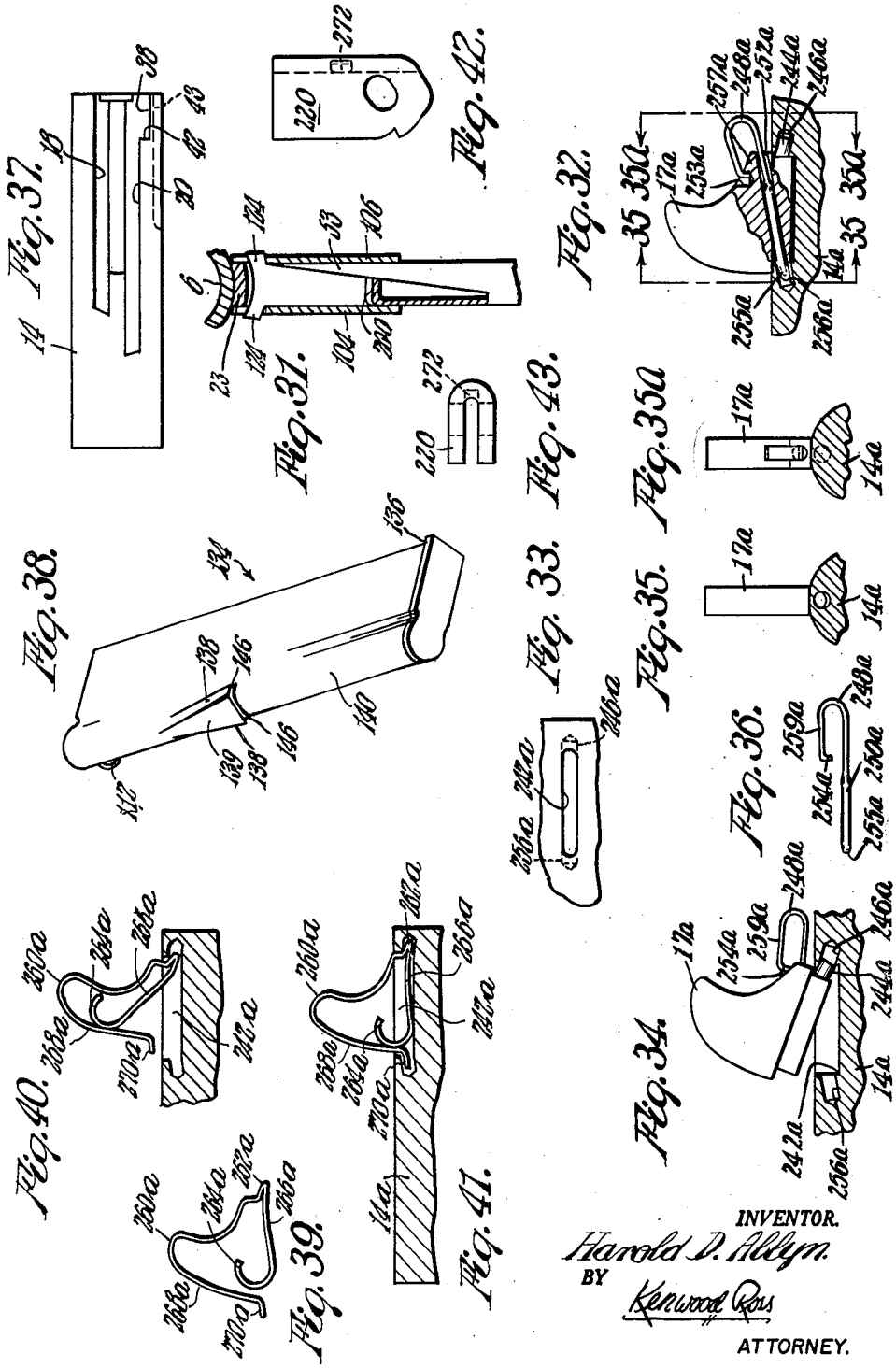
Fig. 22.

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RECEIVER-BARREL ASSEMBLY WITH STOCK AND TRIGGER HOUSING

Original Filed May 19, 1959 5 Sheets-Sheet 5



United States Patent Office 3,153,295 Patented Oct. 20, 1964

3,153,295

RECEIVER-BARREL ASSEMBLY WITH STOCK AND TRIGGER HOUSING

Harold D. Allyn, 10 Sumner Ave., Springfield, Mass.

Continuation of application Ser. No. 814,219, May 19, 1959, now Patent No. 3,079,718, dated Mar. 5, 1963. This application Sept. 18, 1961, Ser. No. 138,831

8 Claims. (Cl. 42—75)

This invention relates to improvements and structural refinements in breech loading firearms of the inertia block, blow-back, semi-automatic type.

Cognate subject matter not claimed herein is embraced in my companion Patent 3,079,718, issued Mar. 5, 1963, of which this application is a continuation.

The invention resides in the particular arrangement, construction and relationship of certain components of firearms of the above defined type, as exemplified in the detailed disclosure hereinafter set forth, wherein the below recited objects will be apparent.

Essentially, the invention comprehends the employment of a hammer having a sear notch which is in direct contact with the sear point of a trigger wherein, as the hammer is cocked by the recoil of firing, the sear point of the trigger becomes deeply engaged in the sear notch of the hammer, and as the trigger is released and the weapon is about to be fired again, the trigger sear point is in shallow contact with the hammer sear so as to offer a short crisp pull free from creep.

A primary object hereof is to provide a basic firearm mechanism by means of which a manufacturer may be able to produce two firearms for the tooling costs of one wherefore, as desired, either a small game or plinking semi-automatic rifle or a semi-automatic target or plinking pistol incorporating said basic mechanism may be provided, all with relatively small tooling costs being necessitated in any change-over from the production of one to the other.

The invention is described herein with particular reference to semi-automatic rifles and pistols, without separate sear or disconnector mechanisms, but it will be appreciated that its principles of design and their application extend beyond the particular types illustrated and envision their incorporation in types of firearms, other than semi-automatic rifles and pistols, either gas or recoil operated, and of the pump, lever or other types.

The mechanism embodying the essence of the invention has been designed with attendant manufacturing problems being borne fully in mind so as to offer weapons which are simple in their construction, the usual complexity of components having been greatly reduced to offer a fundamentally new concept in the combining and coacting of parts.

By the present invention, I provide advantageous structural and operational features in firearms leading to their adaptability to economical manufacture, efficiency and dependability in operational use, and ready accessibility for maintenance and replacement purposes, all resulting in important distinct advantages in ease of operation and reliability of performance.

A variable contact sear notch, otherwise identified as a sliding sear notch, or a shifting sear contact, of the hammer hereof is incorporated into the trigger mechanism hereof wherefore upon firing, and when the triger is held in its rearwardmost position, a sear point of the trigger seats sufficiently deeply into said variable contact sear notch so as not to disengage therefrom during counter recoil.

Such deep seated contact, under the conditions exemplified in known prior art constructions, gives rise to an objectionably long, heavy and creepy trigger pull. However, by the arrangement hereof, when the trigger is

actuated forwardly, preparatory to firing, the sear point of the trigger slides from said deep contact to a relatively shallow contact, all to the end that only a short, light, crisp pull of the trigger is required for the firing operation.

By the construction herein contemplated, during the shock period of autoloading, the trigger is in contact with a relatively large area of the said variable contact sear notch, and thereby considerable of the normal component wear, so objectionable in prior art devices is avoided.

Too, all of such action is accomplished without the employment of many of the components mandatory in prior art constructions.

As one salient feature of the invention, I provide a bedding plate and cooperating assembly screw of such configuration that I am able to maintain the receiver-barrel assembly, housing assembly, ejector, magazine catch, and stock, in a unitary locked-together relation, without any direct contact between the housing assembly and assembly screw and in manner whereby the components can be readily disassembled without tools save for a screw driver, coin, or like implement used to remove the said assembly screw.

To the accomplishment of all of the above ends and such others as will be pointed out hereinafter, the invention intended to be protected by Letters Patent will be understood to comprise the features set forth herein and in the annexed drawings illustrating certain physical embodiments of the invention arranged and combined in accordance with modes which I have devised for the practical application of the principles hereof.

It is to be understood, however, that this is only indicative of but two of the various ways in which the principles of the invention may be employed and in which the component parts may be combined. In other words, the precise constructions of the drawings need not be slavishly followed. Conceivably, certain components might have to be modified in accordance with a particular use to which the firearm is to be put. Changes, modifications and alterations are obviously contemplated and may be made and resort had to substitutions, all within the spirit and scope hereof.

In the drawings:

FIG. 1 is a vertical longitudinal cross-sectional view taken through a breech mechanism of a semi-automatic pistol of the invention, with the breech bolt thereof in the rearward or retracted position;

FIG. 2 is a vertical longitudinal cross-sectional view taken through a breech mechanism of a semi-automatic rifle of the invention, with the breech bolt thereof in the forward or battery position and with the hammer cocked;

FIG. 3 is a sectional view on the line 3—3 of FIG. 2;

FIG. 4 is a sectional view on the line 4—4 of FIG. 1;

FIG. 5 is a sectional view on the line 5—5 of FIG. 2;

FIG. 6 is a top plan view of the pistol shown in FIG. 1;

FIG. 7 is a bottom plan view of the pistol receiver;

FIGS. 8 and 9 are front end and top plan views respectively of the rear cap;

FIG. 10 is a perspective view of the firing pin;

FIGS. 11 and 12 are side elevational and top plan views respectively of the housing assembly;

FIG. 13 is a top plan view of the bedding plate;

FIG. 14 is a longitudinal sectional view of the breech bolt;

FIG. 15 is a sectional view on the line 15—15 of FIG. 14;

FIG. 16 is a front end elevational view of the breech bolt shown in FIG. 14;

FIG. 17 is a partial sectional view on the line 17—17 of FIG. 16 showing the front end portion of the breech bolt;

FIGS. 18, 19, 20 and 21 are perspective views of the safety, ejector, magazine catch, and extractor respectively;

FIGS. 22–24 are fragmentary elevational views of the hammer-trigger mechanism as applied to a rifle and showing the relationship of certain components during various stages of the firing cycle;

FIGS. 25–28 are fragmentary elevational views of the hammer-trigger mechanism as applied to a pistol and showing the relationship of certain components during various stages of the firing cycles;

FIG. 29 is an elevational view of the forward end face of the trigger shown in FIG. 22;

FIG. 30 is a top plan view of the hammer spring;

FIG. 31 is a sectional view on the line 31—31 of FIG. 2;

FIG. 32 is a view on the line 32—32 of FIG. 5;

FIG. 33 is a view on the line 33—33 of FIG. 5 with the bolt handle removed;

FIG. 34 is a fragmentary sectional elevational view, similar to FIG. 32, showing the bolt handle being assembled into operative position in the rifle breech bolt;

FIG. 35 is a sectional view on the line 35—35 of FIG. 32;

FIG. 35*a* is a sectional view on the line 35*a*—35*a* of FIG. 32;

FIG. 36 is a side elevational view of the bolt handle retainer means employed with the bolt handle shown in FIG. 32;

FIG. 37 is a bottom plan view of the breech bolt;

FIG. 38 is a perspective view of the magazine;

FIG. 39 is a side elevational view of a modified spring type bolt handle optionally employed in the rifle hereof;

FIG. 40 is a sectional elevational view of the rifle breech bolt showing the modified form of spring type bolt handle being assembled into operative position;

FIG. 41 is a sectional elevational view of the rifle breech bolt showing the modified form of spring type bolt handle in its assembled operative position; and

FIGS. 42 and 43 are elevational and plan views respectfully of a bent up one-piece hammer.

In the following description and appended claims, various components and details thereof are identified by specific names for purposes of convenience, though such are intended to be as generic in their application as the art will permit.

In the numbering of parts, where the components are employed interchangeably in the rifle and pistol, same carry the same number. Where any design change is involved, the component is numbered in the case of the pistol and the counterpart component is numbered and lettered in the case of the rifle. For example, the pistol barrel is identified as 2 and the rifle barrel is identified as 2*a*. In cases where a component is peculiar to the rifle alone, such component is numbered and lettered, with no counterpart component bearing the number alone being shown in the case of the pistol.

Referring now to the drawings more in detail, I have shown, in FIG. 1, the general outline of a breech mechanism incorporated into a pistol in which certain parts have been broken away for the sake of clarity.

Said pistol includes the usual barrel 2, hollowed stock 4, and receiver 6.

Stock 4 may be formed of wood, plastic or equivalent material. There being no necessity for tangs, straps or other limiting factors, the grip may be configured to any desired shape such as the grip of a free pistol, a flint lock or percussion pistol, a modern double-action revolver, or a western type single-action revolver. Contrariwise, it may be provided in the form of a block wherefore the customer may configure it according to his own personal tastes.

Receiver 6 is preferentially, though not obligatorily, round in cross section, and is provided with a breech bolt bore 7 extending therethrough along its longitudinal axis and alignable and communicating with the bore of barrel 2. Said barrel and receiver are threadedly engageable with or pinned to each other in conventional manner, as desired. As in FIG. 6, the upper portion of receiver 6 is provided with a pair of spaced, elongated and parallel gripping slots extending therethrough and communicating with the breech bolt bore; a right hand gripping slot 8 and a left hand gripping slot 10, slot 8 functioning additionally as an ejector port.

In the bottom plan view of receiver 6 (FIG. 7), it will be observed that a forwardly-disposed magazine cut 239, extending vertically upwardly from the lower surface of the receiver and communicating with breech bolt bore 7 is provided, which magazine cut 239 communicates at one end thereof with a vertically-extending ejector slot 235. A rearwardly disposed hammer cut 236 is also provided in receiver 6 and same also extends vertically upwardly from the lower surface of the receiver and communicates with breech bolt bore 7. A notch 240 extends through the upper and lower portions of the rear end of the receiver and acts as a guide for the rear housing extension 51.

A plurality of spaced, parallel, circumferentially-arranged, gripping grooves 12 are provided on the upper forward surface of a breech bolt 14 receivable within receiver 6 and reciprocable relative thereto during recoil and counter recoil, said grooves facilitating the grasping of said breech bolt through slots 8 and 10 for its manual rearward retraction against the tension of a hammer spring 15 and recoil spring 16.

As will appear, breech bolt 14 may be held in retracted or open position by retracting same rearwardly to its rearwardmost position and slightly rotating it in a counterclockwise direction.

Breech bolt 14 is so weighted as to retard recoil action sufficiently in order to allow the bullet to leave the barrel before said breech bolt is moved rearwardly any appreciable distance.

Recoil spring 16 is receivable in an elongated recoil spring bore extending into breech bolt 14 from the rear end thereof and along its longitudinal axis. The forward end of said spring confronts the forward end of said bore. The spring encircles a shank 30 of an elongated recoil spring guide which extends into the recoil spring bore sufficiently to function as a guide for the recoil spring. The forward end of said spring bears against the forward wall of the recoil spring bore and the rearward end thereof bears against the shoulder of the head 31 of said recoil spring guide. The rearmost coil of the recoil spring is compressed slightly to retain the spring on the recoil guide during assembly.

The rifle, shown in FIG. 2 includes a barrel 2*a*, stock 4*a*, and receiver 6*a*. Stock 4*a* is preferably of the one-piece type and may be similar to any contemporary semi-automatic rifle stock. The gripping grooves in breech bolt 14 thereof and the left hand gripping slot in the receiver 6*a* thereof are here omitted, their functions being better served by a bolt handle 17*a*, as in FIGS. 32, 34, 35 and 35*a* and as in modified form 260*a* in FIGS. 39, 40 and 41.

An ejector, generally designated by 22 and shown in FIG. 19, includes a horizontally-extending base portion 23 and a vertically-extending guide portion 24 fixed thereto or integral therewith. Guide portion 24 is slidably receivable in a vertically-extending left hand magazine clearance cut 20 provided in breech bolt 14, as shown in FIGS. 16 and 37 to preclude rotation of the breech bolt within the receiver. A vertically-extending right hand magazine clearance cut 18 will also be seen in said FIGS. 16 and 37.

A forwardly-extending projection 26, adjacent the top edge of guide portion 24 overlies the upper-rearward edge of the magazine assembly, hereinafter described, for ejecting spent cartridges through slot 8 of receiver 6. See FIG. 1.

Head 31 of the recoil spring guide is provided with a

rearwardly-facing spherically-pointed detent 28 which abuts the forward face of a rear cap 32. Said forward face is provided with a pair of detent notches; a right hand notch 34 serving to receive detent 28 when breech bolt 14 is in operating position, and a left hand notch 36 serving to receive detent 28 when the breech bolt has been rotated counterclockwise, to the left, to locked open position. See FIG. 8.

With reference to FIGS. 8 and 9, an upper portion 56 of the forward face of rear cap 32 is inset from a lower portion 57 thereof to allow a clearance for the rearward end of a firing pin 60 when breech bolt 14 is in retracted position as in FIG. 1. Alternatively, an opening may be provided in the forward face of said rear cap for such purpose.

The recoil spring guide is held under the tension of recoil spring 16 with its detent 28 being selectively nestable in one of the detent notches 34 and 36 in rear cap 32, as aforedescribed.

As aforementioned, the forward portion of the lower surface of breech bolt 14 is provided with right and left hand magazine clearance cuts 18 and 20 respectively. A lower extremity 38 of cut 20 is recessed adjacent its forward end to facilitate the rotation of breech bolt 14, and to provide a shoulder 42 in the breech bolt for holding same in the retracted or open position, as aforementioned, through the contact of shoulder 42 against a rearwardly facing flat surface 40 on guide portion 24 of ejector 22. See FIG. 19. During this rotational movement of breech bolt 14, the spherical point of detent 28 is rotated in an arc from nesting position in notch 34 to nesting position in the notch 36, in which latter position it performs the function of holding breech bolt 14 in retracted position by preventing its shoulder 42 from being jarred out of contact with flat surface 40.

To release breech bolt 14 from said retracted position, it is necessary only to rotate same clockwise, to the right, to disengage shoulder 42 from flat surface 40 and to return detent 28 from nesting position in notch 36 to nesting position in notch 34. So released, breech bolt 14, tensioned by recoil spring 16 is urged forwardly to battery.

Additionally, detent notch 34 also serves to guide breech bolt 14 in its operating position momentarily when, at its rearward position, said breech bolt is disposed in such manner that the lower extremity 38 of left hand magazine clearance cut 20 in breech bolt 14 prevents ejector 22 from functioning as a guide in said left hand magazine clearance cut 20.

Bolt handle 17*a* of the rifle hereof serves as a means for gripping the breech bolt 14*a* to effect this rotation with a corresponding result.

In the pistol, an extractor slot 46, as in FIGS. 16 and 17, allows the fingers to obtain a firm rotational grip on breech bolt 14. A non-slip horizontal groove 43 is cut in the left side of breech bolt 14 to assist further in the gripping action during rotation.

As shown in FIG. 8, rear cap 32 is provided with a rearwardly-facing, vertically-extending slot 48 for nestably receiving an upper extremity 51 of the rearward-vertically-extending portion of a generally U-shaped spacer of the housing assembly. Said upper extremity 51 of the spacer may be defined as a rear housing extension and its lower end merges into the rear end of a horizontally-extending trigger guard portion 52 of the spacer, the forward end of the trigger guard portion merging into the lower end of a rear magazine wall portion 53 of said spacer.

Rear housing extension 51 supports rear cap 32 against breech bolt recoil, said rear cap being juxtaposed forwardly thereof and being positioned within the rear end of receiver 6, as in FIG. 1. For resistance to repeated recoil blows of breech bolt 14, a reinforcement 64 may be fixed to rear housing extension 51 as in FIGS. 1, 6, 11 and 12.

In FIG. 6, it will be observed that the uppermost surface of rear housing extension 51 is provided with a rear sight notch 54.

In the rifle of FIG. 2, a rear cap 32*a* is similarly receivable within the rear end of the receiver 6*a*, but differs in that the vertically extending slot 48*a* does not extend through the cap. An end cap 33*a* is secured to the rear face of rear cap 32*a* above and adjacent slot 48*a* and encloses the upper extremity of the rear housing extension 51*a* and the reinforcement 64*a* (which are not as long as their counterparts 51 and 64 in the pistol) and it has an outermost rounded surface offering a streamlined appearance. End cap 33*a* and rear cap 32*a* may be unitary, if desired. Rear housing extension 51*a* does not extend above the plane of the upper surface of receiver 6*a* so as to provide a rear sight, as in the case of the pistol, wherefore a separate rear sight may be mounted on the top of the receiver or on the barrel in known manner.

The shortening of rear housing extension 51*a* and of reinforcement 64*a* are the only differences in the housing assemblies of the pistol and rifle.

Firing pin 60 will be observed, in FIG. 10, to include a cylindrical forward portion 61 and a rectangular rearward portion 63. Portion 61 is receivable in a breech bolt firing pin opening 70 and portion 63 is receivable in an aligned breech bolt firing pin slot 74, said slot 74 being disposed vertically below and in communication with the recoil spring bore. See FIGS. 14 and 15.

The top planar surface of portion 63 of the firing pin is relieved so that only a rear end portion 77 and a forward end portion 78 extend upwardly therefrom, which portions will bear upwardly against recoil spring 16 aligned thereabove.

To prevent the rear end of firing pin 60 from jumping upwardly, as same is driven forwardly by the hammer, subsequently to be described, and/or from exerting any undue pressure on the bottom of recoil spring 16, an angle cut 80 is provided on the forward face of a downwardly depending firing pin retaining lug 82 for mating with a complemental undercut 84 on the front end of a firing pin retaining cut 86 in breech bolt 14, as in FIG. 14. When said hammer has driven firing pin 60 to forwardmost position, angle cut 80 strikes undercut 84 to prevent any upward movement of said firing pin. A rearward face 88 of lug 82 strikes a complemental rearward face 90 of cut 86 to limit any rearward movement of said firing pin.

The extractor, generally indicated by 92 in FIG. 21, comprises a unitary structure, preferably a stamping, having a lug 94 extending outwardly in a direction transverse to its longitudinal axis, said lug consisting of a pair of ears on opposite sides of the extractor body and being receivable in the extractor retaining opening 96 in breech bolt 14, as in FIG. 17.

A rearward extremity or tail 98 of extractor 92 is bent, as shown, to provide a spring tension when said extractor is placed in the extractor opening 100 in breech bolt 14. Same permits the flexing of its forward extremity with the movement of lug 94 into and out of locking position in opening 96 and also provides tension to grasp the rim of a shell or cartridge during extraction.

The forward extremity of extractor 92 is bent in the form of an extractor hook 102 and is juxtaposed adjacent the forward face of breech bolt 14.

With reference to FIG. 4, a hammer pin 164 is provided with an enlarged head 165 and a trigger pin 170 is provided with an enlarged head 171, said heads being adapted to bear against an inner wall of stock 4 so as to retain said pins relative to the housing. Small portions may be extruded outwardly from the bodies of each of the hammer and trigger pins adjacent the enlarged heads and corresponding notches may be cut in the periphery of the hammer and trigger pin holes (not shown) on the left hand side of the housing to prevent rotation of said pins during movements of the hammer and trigger.

The housing assembly, generally indicated as 50 in FIG. 11 and FIG. 12, is preferentially made from cold

finish sheet stock and is of such configuration as to have a pair of spaced vertically extending left and right hand side plates **104** and **106** respectively, fixed as by weldments, brazing or rivets to opposite sides of said spacer, said plates being provided with outwardly extending bedding ears **108** and **114** respectively, and said plate **106** being additionally provided with an outwardly extending offset **110** to provide a clearance for the usual magazine loading button **112**. See FIG. 2. Said offset may be omitted if a loading button is not used in the magazine. Said bedding ears **108** and **114** extend at right angles to the upper edge of the respective side plates and provide rigidity and stiffness thereto.

As in FIG. 5, an ejector support **116** extends as a web transversely between side plates **104** and **106** providing a support for the lowermost or under surface of base portion **23** of ejector **22**, when said ejector is locked in position upon assembly, and it also acts as a forward stop for the hammer **120**, when the housing assembly is disassembled from the receiver-barrel assembly.

A safety, generally indicated by **122** in FIG. 18, is provided with a pair of outwardly and oppositely extending ears **124**, the bottoms of said ears being nestable in the respective safety slots **126** provide oppositely in said side plates **104** and **106**. Said slots are so formed as to enable the flat portion **128** of safety **122** to lie against the rear magazine wall portion **53** of the spacer. See FIG. 31.

A finger portion **129** of safety **122** extends outwardly from the lower end of flat portion **128** thereof to facilitate manual engagement, as will appear subsequently. A shelf **200** extends angularly outwardly from flat portion **128** and may comprise an inwardly-turned part of finger portion **129**.

Left hand and right hand detent cuts **196** and **198** respectively are provided on opposite side edges of shelf **200**.

The magazine assembly, generally indicated by **134** in FIG. 38, is conventional in structure and is releasably held in the usual cavity, as will appear.

A rearwardly extending lip **136** of the lower wall of magazine assembly **134** functions as a stop when said assembly is inserted into the firearm by engaging in a magazine stop notch **132** provided in the lower front face of trigger guard portion **52** of the spacer.

A magazine catch **144**, shown in FIG. 20, includes a a lower end portion comprising a rearwardly-extending lip **142**, a forwardly-extending finger **148**, a slotted and flexible midsection **149** extending transverse to and upwardly from portions **142** and **148** and terminating at its opposite and upper end in a bend **153**, and a forwardly-extending upper end portion **154**.

When magazine assembly **134** is inserted into the firearm, camming surfaces **138** on opposite sides of a magazine retaining projecting **139**, which extends outwardly from the forward wall **140** of said magazine assembly, cams lips **142** so that it moves forwardly as midsection **149** flexes.

When magazine assembly **134** is fully in place, lip **142** snaps rearwardly, due to its inherent spring tension, and catches beneath the lowermost edges **146** of projection **139** to lock said magazine assembly in place.

Conversely, a forward pressure on finger **148** releases said magazine assembly so that same may be withdrawn from the gun.

Magazine catch **144** is held in place by the rounded rearward extremity **150** of a bedding plate **152** bearing upwardly against the lower portion of bend **153** in magazine catch **144**, which in turn bears upwardly on the lower portion of the forwardly facing bend **156** at the top of the front wall **155** of the housing assembly disposed between side plates **104** and **106**. See FIG. 11.

As in FIG. 13, bedding plate **152** comprises a bar of generally rectangular shape though it could be of other configuration, such as channel shaped, to effect a weight reduction therein as well as to strengthen same.

The pistol trigger mechanism has a variable contact notch (FIGS. 1 and 25–28) and the rifle trigger mechanism is of the conventional sear notch type (FIGS. 2 and 22–24), it being understood that the systems may be used interchangeably. As semi-automatic rifles generally possess hard and creepy pulls and as light and crisp pulls are especially desirable for pistols, the variable contact notch, offering superior pull, is herein shown in connection with the pistol.

In FIGS. 2 and 22, in the case of the rifle, breech bolt **14***a* is shown in forward position and hammer **120***a* is shown as being under the full tension of hammer spring **15** so that the weapon is cocked in a ready-to-fire position.

Hammer **120***a* is bifurcated (see FIG. 22) at its rearward lowermost portion to provide a slot **162**, at the forward and inner corner of which a socket or pocket of corresponding width is provided in communication therewith. Said socket has a forward rounded wall portion **160** and a rearward rounded wall portion **161**, which wall portions are connected by a relatively long and straight connecting wall portion.

The forwardly extending end portion **158** of hammer spring **15** is extendable through slot **162** and into the said hammer socket.

In FIG. 22, end portion **158** is seated against front wall portion **160** of the socket and hammer pin **164** is disposed at the bottom or normal position in an elongated pivot slot **166** in hammer **120***a*.

When the trigger **168***a* is pulled rearwardly, it pivots on trigger pin **170** to compress a coil-type trigger spring **172** nested within a downwardly-facing opening in the forward portion of said trigger. The uppermost coil of the trigger spring is opened slightly outwardly to cause it to be retained within said opening. The lower end of said trigger spring extends outwardly, beyond the trigger face, and has a lowermost dentent portion, the function of which will be hereinafter explained.

Simultaneously with the rearward pull of the trigger, sear point **174** on the upper edge of the trigger traverses in an arc downwardly out of mating relationship with a complemental sear notch in hammer **120***a*, whereby said hammer is caused to fall and pivot upon hammer pin **164** under the tension of hammer spring **15**.

As hammer **120***a* falls, the upwardly bent end portion **158** of hammer spring **15** rides from front wall portion **160** along the connecting wall portion to rear wall portion **161** of the socket to the position, shown in FIG. 23, where said hammer is in down position, having struck the rear end of firing pin **60**, so that the cartridge is discharged, breech bolt **14***a* is ready for recoil, hammer pin **164** is at a bottom or normal position in elongated pivot slot **166**, and trigger **168***a* is held back.

In a blow-back type of firearm, considerable hammer spring pressure is desirable when the hammer face is embraced against the breech bolt so as to enable the force, required for the initial cocking of the hammer, to assist the breech bolt in retarding the explosion force. It is equally desirable to have less hammer spring pressure, when the hammer is in the full cocked position, to reduce the sear notch pressure and prevent the upper face of the hamer from binding on the lower portion of the breech bolt during counter recoil.

The closer the end portion **158** of hammer spring **15** to hammer pin **164**, the more favorable the leverage for cocking the hammer and compressing the spring.

With end portion **158** in rear wall portion **161** of the socket, as in FIG. 23, the spring is in its most unfavorable leverage position relative to hammer cocking.

As the hammer approaches full cock, end portion **158** rides along the wall of the socket. When full cock is reached, said end portion is disposed in front wall portion **160** of the socket, as in FIGS. 2 and 24, so that the spring presses upwardly on the hammer against the breech bolt with its most unfavorable leverage.

A small notch (not shown) may be cut in the rear wall portion **161** of the socket to maintain end portion

158 at a rearward position in the socket for a longer period while the hammer is being cocked. With this notch, as the hammer approaches full cock, a point is reached where the upper forward portion of the hammer spring is no longer retained by the notch so that it snaps downwardly and forwardly to the front wall of the socket.

Hammer spring 15, as best shown in FIG. 30, is of the mouse-trap type and has a rearward end provided with a pair of outwardly protruding fingers 184, each being pivotally receivable in a complementary opening 189 in the opposite side walls of the housing assembly and held therein by the outward inherent spring tension of the legs 186 of said spring.

As the hammer is being cocked, portion 158 of the hammer spring exerts an upward and a forward pressure on the hammer to maintain hammer pin 164 in bearing position upon the lower portion of elongated pivot slot 166.

Before the hammer reaches full cock, the end portion of the hammer spring initiates a downward and a forward pressure, to cause the hammer to slide or shift downwardly along pivot slot 166 so that hammer pin 164 is in the top portion of the pivot slot. The sear notch in hammer 120*a* is thus enabled to contact sear point 174 of trigger 168*a* to hold the hammer in full cock position as the breech bolt counter-recoils and during this interval, trigger 168*a* is held rearwardly.

As in FIG. 24, breech bolt 14*a* is in the rearmost position immediately before it reciprocates forwardly. During its counter-recoil, a cartridge is stripped from the top of the magazine assembly and is loaded into the breech in known manner.

When trigger 168*a* is released, trigger spring 172 urges the finger portion of the trigger forwardly and the front portion of the trigger rotatively to drive the hammer upwardly along elongated pivot slot 166, and to overcome the downward pressure exerted by end portion 158 of the hammer spring. In other words, the hammer moves in relation to the hammer pin from a position where the hammer pin is in the top of pivot slot 166 (as in FIG. 24) to a position where the hammer pin is in the bottom thereof (as in FIG. 22).

With reference once more to FIG. 22, same shows the firing cycle completed with the breech bolt closed and the trigger in its forward, ready-to-fire, position.

The sliding action of the end portion 158 of the hammer spring having been thus explained in this description of the conventional sear notch trigger-hammer mechanism, its functioning will not be repeated in the following description of the variable contact notch trigger-hammer mechanism as shown for a pistol in FIGS. 25–28.

In FIG. 25, breech bolt 14 is shown in forward position and hammer 120, under full tension of hammer spring 15, is shown as cocked, with the gun being in a ready-to-fire position. Hammer pin 164 is at the bottom, or normal, position in pivot slot 166 in the hammer.

When the trigger is pulled, it pivots on trigger pin 170 and compresses trigger spring 172. Sear point 174 of trigger 168 is moved downwardly out of its complemental sear notch in hammer 120 and the hammer falls, due to the tension of hammer spring 15. When the hammer strikes the firing pin, the cartridge is discharged.

In FIG. 26, hammer 120 is shown in the down position, the cartridge having just been fired, with the breech bolt not yet started in its recoil.

Therefollowing, the breech bolt starts to recoil to the rear against the tension of recoil spring 16. Hammer pin 164 remains at the bottom or normal position of pivot slot 166, the trigger is held back, and the hammer is being cocked by the rearwardly moving breech bolt.

Hammer spring fingers 184 pivot in their respective openings 189 in the housing assembly and end portion 158 of the hammer spring exerts an upward, and also a forward, pressure on the hammer to keep hammer pin 164 bearing on the lower portion of elongated pivot slot 166.

Before the hammer reaches full cock, end portion 158 of hammer spring 15 begins to exert a downward, as well as a forward, pressure to urge the hammer to slide or shift downwardly along pivot slot 166.

The sear notch in hammer 120 contacts sear point 174 of trigger 168 in manner such that, as the breech bolt starts its counter recoil, the sear point of the trigger is deeply engaged in the sear notch of the hammer, during which time the trigger is held to the rear.

The hammer pin is now in the top portion of the elongated pivot slot 166, as shown in FIG. 27, with the breech bolt to the rear, and the sear point of the trigger deeply engaged in the sear notch of the hammer. A raised portion 192 of trigger 168 contacts the forward rounded surface of the hammer and the trigger is held back.

The breech bolt then moves forward during counter recoil and the sear point of the trigger is deeply engaged in the sear notch of the hammer, as the trigger is held back, as in FIG. 28.

The hammer and trigger are in the same relation to each other, as in FIG. 27, except that the sear notch of the hammer now bears on the sear point of the trigger. When trigger 168 is released, trigger spring 172 urges the finger portion of the trigger forwardly and the front portion thereof upwardly. Said raised portion 192 is in contact with the rounded surface of hammer 120 so that, as the front end of the trigger moves upwardly, it pushes the hammer and the front end of the hammer spring upwardly.

As the hammer moves upwardly, it slides along hammer pin 164. Trigger 168 pivots on trigger pin 170 and the sear point 174 of the trigger also moves upwardly.

However, since said raised portion 192 is further from the trigger pin (the pivot point of the trigger) than the sear point 174 of the trigger, it moves through a greater arc and therefore pushes upwardly on the hammer (which slides upwardly along the elongated pivot slot) a distance greater than that moved by the sear point.

Although the front end of the trigger and the hammer both move upwardly, the sear point of the trigger moves downwardly on the sear notch of the hammer.

This movement continues until the bottom portion of hammer pin 164 contacts the bottom of pivot slot 166, whereupon further upward movement of the hammer is precluded.

At this time, sear point 174 is in shallow engagement with the sear notch of the hammer, as shown in FIG. 25, and a light, crisp, pull is thereby obtained when the trigger is pulled.

With reference once again to FIG. 25, the reloading cycle has been completed and the gun is again ready-to-fire.

As shown in FIG. 26, a safety sear notch 177 may be provided in the hammer so that, if the cocked hammer should be jarred off of the sear point of the trigger, when the trigger is not being pulled in the act of firing, the sear point of the trigger will catch in the safety sear notch of the hammer and the face of the hammer prevented from reaching the firing pin.

If a fairly heavy trigger spring is used and the gun is cocked manually, with the finger removed from the trigger, as in loading a first cartridge, the operation of the trigger and hammer is the same, in effect, as if there were no elongated slot. That is, the hammer operates so that the hammer pin is always at the bottom of the elongated pivot slot when the trigger is not held back.

When a relatively light trigger spring is used, and the gun is cocked as above, the hammer, as it approaches full cock, moves downwardly along the elongated slot into the deep notch position so as to force the sear point of the trigger downwardly against the pressure of

the trigger spring. As the bolt proceeds to return to battery, it releases the overtravel of the hammer so that the sear point of the trigger contacts the hammer in the deep notch position. When the bolt, in its forward motion, no longer bears on the face of the hammer, the hammer is immediately pushed upwardly along the elongated slot by the force of the trigger spring as it pushes the sear point of the trigger upwardly. When the hammer is in its uppermost position (the hammer pin being at the bottom of the elongated slot), the sear point of the trigger is in shallow notch contact with the hammer and the trigger is ready to be pulled to discharge the firearm.

A flat raised portion 199 is provided on either trigger 168 or 168*a* to act as an over-travel stop for the hammer. As the center of the raised portion is on the vertical center line of the trigger pivot pin, no movement of the trigger will be felt if the hammer overtravels from the full cock position sufficiently so that the lower portion of the hammer contacts the raised portion of the trigger.

The lowermost outwardly extending end coils 173 of the trigger spring 172 are closed in and bent to form a detent point for the operation of safety 122, now to be explained.

Left hand detent cut 196 on shelf 200 of the safety serves to hold said safety in the safe position. Right hand detent cut 198 serves to hold said safety in the fire position. See FIG. 18. When the safety is thrown to safe position with the hammer cocked, shelf 200 is disposed under a downwardly projected portion 202 of the lower front end of the trigger and the top portion of safety 122 is held upwardly, against the downward tension of the trigger spring, by safety ears 124 bearing on the respective bottoms of slots 126 in side plates 104 and 106, all to preclude the pulling of the trigger.

When the safety is moved to the left, shelf 200 is disposed under the cut-away portion 208 of the lower front end of trigger 168 so that the trigger may be pulled. After the trigger has been pulled, said cut-away portion 208 bears on shelf 200 and acts as a trigger stop.

When the conventional sear notch (FIGS. 22–24 incl.) is used, the stoppage occurs immediately after the trigger point is pulled out of the sear notch of the hammer.

When the variable contact sear notch (FIGS. 25–28 incl.) is used, there is a predetermined amount of overtravel of the trigger, after the trigger point has been pulled out of the sear notch of the hammer, before the stoppage occurs.

One function of the trigger safety is to act as an indicator to the operator that the gun is or is not cocked. When cocked, the sear point of the trigger is engaged in the sear notch of the hammer. In this position, the safety is free to move to the safe position. When pulled out of the sear notch and the gun is fired, the front end of the trigger assumes a slightly lower position so that a portion of the lower front end of the trigger blocks the movement of the safety to the safe position. Unable to move the safety, the operator knows that the gun is not cocked.

Using the conventional notch shown in FIG. 22, the gun is shown as cocked and ready to fire. As with most firearms of this type, the trigger point goes the usual depth into the sear notch of the hammer, resulting in a long, creepy, pull. This necessitates a long pull of the trigger and, because of this long pull, a considerable amount of interference from downwardly projected portion 202 of trigger 168*a* is experienced, when and if the safety is attempted to be thrown with the hammer in the down position of FIG. 23.

As above stated, the trigger pull on the variable contact sear notch (FIGS. 25–28 incl.) can be made short and crisp.

When a very slight trigger movement is required to fire the weapon, the amount of interference which the downwardly projected portion of the trigger presents to the safety, after the trigger has been pulled, is very slight.

There is necessarily some over travel of the trigger after it has been pulled when the variable contact sear mechanism is used. This over travel is used to advantage in the form of a hump 229 on the bottom of the hammer (shown in FIGS. 25–28 incl.). Although shown as a hump for convenient reference, it may be in the form of a continuous radius from the sear notch to the top of the hump, as shown in FIG. 1. When the hammer falls, hump 229 keeps the lower front portion of the trigger in the "over-traveled" position. In this position, the hump causes portion 202 of the trigger to provide a surface to interfere with the throw of the safety approximately equal to the height of the hump.

The trigger pull on the variable contact sear has a certain predetermined amount of over-travel, as stated above, after the hammer has been released, the effect of which may be partially overcome, if desired, by a pair of trigger springs of opposite hands, one being disposed inside of the other. The inner spring with a closed in end detent portion, operates in the same manner as the single trigger spring but, just as the hammer is released by the sear, shelf 200 of the safety is contacted by the shorter and heavier outer spring (not shown) which extends just below the cut away lower portion of the trigger. As the trigger is further pulled rearwardly during over-travel, the heavier outer spring is also compressed and acts as a trigger buffer.

The hammer and trigger may be fabricated from laminations of sheet steel stampings which may be riveted, soldered, welded or brazed together. However, they may be made in any other manner and of any other material, all within the spirit of this invention. A hammer 220 may be made from bent up flat stock, as shown in FIGS. 42 and 43 with pocket 272 in approximately the same position as the pocket previously described. This pocket may be elongated, as shown, or round. If round, the end portion of the spring will not ride along the forward portion of the pocket during cocking, as previously described.

The assembling of the gun will now be explained.

Bedding plate 152, with its upper rounded end portion 150 extending upwardly and rearwardly, is placed within stock 4. Assembly screw 203 is urged upwardly through an appropriate opening in the stock and is threadedly engaged with the bedding plate, until the middle relieved portion of the screw is free within the tapped hole 216 of the bedding plate. The function of said bedding plate, in cooperation with the screw, is to hold the barrel-receiver assembly, housing assembly, magazine catch, ejector, and stock, all locked together as a single assembled unit.

Magazine catch 144, with its lip 142 extending downwardly and rearwardly, is then placed over screw 203, the forwardly extending portion 154 of the magazine catch being provided with an opening therethrough of sufficient diameter to clear the threads of screw 203 as it is placed thereover.

It may be threaded and placed over the assembly screw in a manner similar to the bedding screw, if desired.

Safety 122 is then placed in the trigger housing against the rearward side of portion 53 of spacer, the safety being allowed to drop downwardly until ears 124 thereof are seated in slots 126 in the trigger housing.

Trigger spring 172 is placed in the trigger spring opening in the lower front portion of trigger 168, with the detent of the spring extending outwardly. The trigger is placed in position in the housing and trigger pin 170 is pushed into the trigger pin opening from the left. Fingers 184 of hammer spring 15 are urged together and allowed to snap outwardly into corresponding openings 189 in the trigger housing.

Being sure that the safety is in the fire position, the forward end of the hammer spring is placed in spring slot

162 of hammer 120 and the upwardly curved end portion is seated in the socket at the forward end of said slot. The hammer may now be pushed into position and hammer pin 164 assembled in place from the left side. The trigger housing assembly is now complete.

Tail 98 of extractor 92 is placed in extractor opening 100 in the breech bolt and extractor hook 102 is pulled outwardly while the extractor is pushed into position. When lug 94 is aligned with opening 96 in the breech bolt, the lug snaps into the opening due to the spring tension throughout the length of the extractor. Projection 26 of ejector 22 is placed in ejector slot 235 in the lower side of the receiver 6 (see FIG. 7) and the rear of the ejector is swung toward the receiver until the upper face of base portion 23 of the ejector contacts the bottom portion of receiver 6.

Ejector slot 235 in the receiver 6 is provided with a shoulder 233 which functions as a stop to prevent forward movement of the ejector during assembly.

Firing pin 60 is inserted into breech bolt 14 so that its forward striking point extends through firing pin opening 70. When in its most forward position, firing pin retaining lug 82 drops into firing pin retaining cut 86 of the breech bolt.

Recoil spring 16 is assembled loosely upon shank 30 of the recoil spring guide. The breech bolt is now inserted into the receiver with the left hand magazine clearance cut sliding over the top of the ejector. The rearward end of the ejector meanwhile is held against the bottom of the receiver with a finger. Recoil spring 16 is compressed upon shank 30 of the recoil spring guide. With the breech bolt in the rear position in the receiver, the compressed spring on the recoil spring guide is placed in the recoil spring hole, with end 28 of the guide facing to the rear. The spring is released and the bolt is allowed to move forwardly while the rear end 28 is retained by a finger. Rear cap 32 is placed over the end of the recoil spring guide and is pushed into the receiver until further movement is precluded by the shoulder on the cap.

The trigger housing assembly is held in one hand and the barrel-receiver assembly in the other, with the rear cap and the ejector being held in place by the hand holding the receiver. Holding the barrel-receiver assembly, slot 48 in the rear cap is placed on the rear housing extension. The front end of the barrel is then swung into place.

The combined barrel-receiver and trigger housing assemblies are now placed in the stock and with all of the components in place, the assembly screw 203 is threadedly engaged with appropriately aligned openings in the receiver and/or barrel, as shown.

As the assembly screw is tightened, the receiver-barrel assembly is pulled downwardly and forward end 214 of the bedding plate contacts the lower portion of the barrel. The bedding plate pivots on fulcrum 212 of the stock. The rounded end 150 of the bedding plate pushes upwardly against the bottom of bend 153 of magazine catch 144. The top of the bend of the magazine catch in turn pushes upwardly on the bend between the vertically extending and horizontally extending portions 155 and 156 respectively of the front wall of the trigger housing while the complete barrel and receiver assembly is being pulled downwardly by the assembly screw.

As the housing assembly is pushed upwardly in relation to the receiver by the action of the end 159 of the bedding plate, the angle of the rear magazine wall bears on the angle of the lower front end 237 of the ejector to provide a wedging action thus locking the components firmly together.

Simultaneously, the barrel-receiver assembly and the bedding plate, being forced upwardly at the front, pivot on the stock fulcrum and force the rear end of the receiver downwardly against the angles of the housing ears 222. See FIG. 4. A final tightening of the assembly screw forces the front end of the barrel downwardly as the aforementioned wedging action continues.

Further pressure, as the assembly screw is tightened, forces the housing ears firmly against the ear bedding surfaces 204 of the stock upon which the bedding ears of the trigger housing rest. See FIG. 4.

The rear of the housing is at an angle to the vertical and the recoil shoulder 206 of the stock 4 is at a corresponding angle to the vertical. As bedding ears 108 and 114 come to rest on ear bedding surfaces 204, a further wedging action takes place as the rear of the housing contacts recoil shoulder 206 of the stock. Also, the rear of the housing and recoil shoulder 206 could be made vertical, if desired, in which instance there would be no further wedging action when the rear of the housing contacts the recoil shoulder.

The complete assembly is now locked in the stock, the assembly screw exerting downward pressure, the bedding plate bearing on the fulcrum of the stock and the housing ears bearing on the ear bedding surface of the stock. The lower front end of the receiver bears on front housing extension 156 of housing 50 and the lower rear of the receiver bears on the angle of housing ears 222, and the rear of the housing bears on the recoil shoulder of the stock. See FIGS. 1 and 4.

The trigger housing and barrel-receiver assembly are locked together against relative longitudinal movement by rear housing extension 51 bearing on the rear cap and the upper end of the rear magazine wall bearing on the angle of the lower front end 237 of the ejector. The lower rear end guide portion 24 in turn bears against the rear of ejector slot 235 in the bottom of the receiver 6.

The uppermost end 53' of the rear magazine wall is receivable in magazine cut 239 in the bottom of the receiver. See FIG. 7.

The base portion 23 of ejector 22 is locked solidly in place between the bottom of receiver 6, which bears on the top portion of the base of the ejector, and ejector support portion 116 of the trigger housing, upon which the ejector rests, when the assembly screw is tightened.

The barrel is now free floating in the stock forwardly of front portion 214 of the bedding plate and the rear portion of the trigger housing assembly bears on recoil shoulder 206 of stock 4.

On the rifle, assembly screw 203 may be threadedly engaged with the lower rear portion of the barrel, as shown in FIG. 2. In this instance, bedding plate 152*a* is preferably of greater width and length so as to provide increased strength, and greater holding leverage.

In the case of the rifle, a bolt handle retainer 250*a* is disposed in a longitudinally extending opening 252*a* provided in bolt handle 17*a*.

Retainer 250*a* is provided with a curved forward end portion 248*a* which terminates in a downwardly extending tab 254*a*. The curved portion 248*a* provides necessary spring tension while tab 254*a* acts as a retaining lug upon engagement in an opening 253*a* provided in the bolt handle. See FIGS. 32 and 36.

As seen in FIG. 34, tab 254*a* has been raised from its engagement in opening 253*a* in the bolt handle, while the rearward extremity 255*a* of the retainer now rests completely within the bolt handle.

The bolt handle may now be inserted into slot 242*a* provided in breech bolt 14*a* by holding the bolt handle at an angle as shown in FIG. 34 and inserting a lug 244*a* extending forwardly therefrom into a recess or undercut portion 246*a* provided at the forward extremity of slot 242*a*.

When the bolt handle is fully seated in slot 242*a*, as shown in FIG. 32, curved portion 248*a* of the retainer is urged rearwardly whereby rearward extremity 255*a* is moved rearwardly into recess 256*a* provided at the rearward extremity of slot 242*a*.

As retainer 250*a* is urged rearwardly relative to the bolt handle, tab 254*a* is also moved rearwardly and up-

wardly along curved forward edge 257*a* of the bolt handle until it reaches opening 253*a* whereupon it snaps thereinto, being under the tension of curved portion 248*a*, to hold the retainer in place relative to the bolt handle and thereby to lock the bolt handle in place.

To remove the bolt handle from its engagement in slot 242*a* of the breech bolt, tab 254*a* is lifted from its engagement in opening 253*a*, by grasping portion 259*a*, and the retainer is pulled forwardly until the end 255*a* thereof is clear of the recess 256*a* at the rear of slot 242*a*, at which time the rear of the bolt handle may be raised upwardly and then pulled rearwardly out of slot 242*a*.

As a modified form of bolt handle for the rifle, a spring type bolt handle 260*a* is shown in FIG. 39. Same is formed from flat spring stock of essentially the same width as slot 242*a* in the breech bolt 14*a* and may be placed in said slot instead of the solid bolt handle 17*a*.

FIG. 40 shows the spring type bolt handle being assembled in place. The front tab 262*a* is placed in the front under cut of the slot 242*a* and the curved end 264*a* of the locking arm 266*a* is pulled upward and the rear leg 268*a* is pressed forward until the rear tab 270*a* can be pushed downward into the slot 242*a* at which time the leg 268*a* is released and the rear tab 270*a* snaps into the rear under cut of the slot, due to its inherent spring tension. The locking arm then springs downward and the rear of the curved end 264*a* bears against the forward lower portion of the rear leg 268*a* blocking its forward movement and securely locking the spring type bolt handle in the bolt 14*a*, as shown in FIG. 41.

To remove the spring type bolt handle from the bolt, the top portion of the curved end 264*a* is grasped and pulled upwardly. When in the upper position, the lower end of the rear leg 268*a* is pushed forward enabling the rear tab 270*a* to clear the rear under cut at which time the rear leg can then be lifted upwardly and when clear of the slot allowed to snap rearwardly. The front tab 262*a* may then be moved rearwardly and the spring type bolt handle removed from the bolt.

Although, in the drawings and in the above description, I have shown two optional but preferred embodiments of my invention and various alternatives and modifications thereof, it is to be understood that these are not intended to be exhaustive of nor limiting of nor departing from the spirit of the invention. That is, the objects of the invention may be attained by use of constructions different in certain respects from that disclosed such as in size, form, proportion and the like without departing from its underlying principles and it is understood that such will readily occur to those skilled in the art. Such adaptations and/or changes should be and are intended to be comprehended within the meaning range of equivalence of the claims appended below.

Without further analysis, the foregoing is intended to so fully reveal the gist of my invention and the construction and operation of the device thereof that others can, by applying current knowledge, readily adapt it for various applications without omitting features which, from the standpoint of prior art, fairly constitute essential characteristics of the generic or specific aspects of this invention. Therefore, such adaptations should and are intended to be comprehended within the meaning range of equivalence of the claims below.

The following claims are desired to include within the scope of the invention all such suitable variations, modifications and equivalents by which substantially the results of the invention may be obtained through the use of substantially the same or equivalent devices or means.

Accordingly, limitation of this invention should be made only as determined by a proper interpretation of the terms used in the subjoined claims.

Having thus described the invention, what is claimed as new and novel and is desired to be secured by Letters Patent is:

1. In a firearm comprising, a receiver-barrel assembly including a barrel and a receiver, a stock, a trigger housing including a front wall, a bedding plate nestable in said stock, an assembly screw extendable through said stock and bedding plate and threadedly engageable with said receiver-barrel assembly for maintaining said trigger housing in locked relationship to said receiver-barrel assembly, said bedding plate having a forward extremity bearable upwardly upon the lower portion of the barrel of said receiver-barrel assembly and a rearward extremity bearable upwardly on the front wall of said trigger housing as said assembly screw is tightened in effectuating downward movement of said receiver-barrel assembly.

2. In the firearm as set forth in claim 1 including a unitary magazine catch having an upper portion fixedly held between the rearward extremity of said bedding plate and the front wall of said trigger housing.

3. In the firearm as set forth in claim 1 including bedding ears on said trigger housing for assisting in locking said receiver-barrel assembly to said trigger housing and stock.

4. In the firearm as set forth in claim 1 including, an ejector with a lower forwardly inclined surface to assist in the camming and locking action of said barrel-receiver assembly to said trigger housing and stock.

5. In the firearm as set forth in claim 1 including a rear cap, an upwardly extending rear housing extension receivable in a slot in said rear cap to assist in the camming and locking action of said receiver-barrel assembly to said trigger housing and stock.

6. In the firearm as set forth in claim 1 including, an upwardly extending fulcrum on said stock to assist in the locking together of said stock, receiver-barrel assembly and trigger housing.

7. In the firearm as set forth in claim 4 including, an ejector support in said trigger housing.

8. In the firearm as set forth in claim 4 including, a rear magazine wall bearing on the front end of said ejector.

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