Jan. 29, 1963 H. D. ALLYN 3,075,313

BREECH BOLT FIREARM WITH MOVABLE FOREARM AND ACTION BARS

Original Filed Feb. 17, 1956 3 Sheets-Sheet 1

Fig. 1.

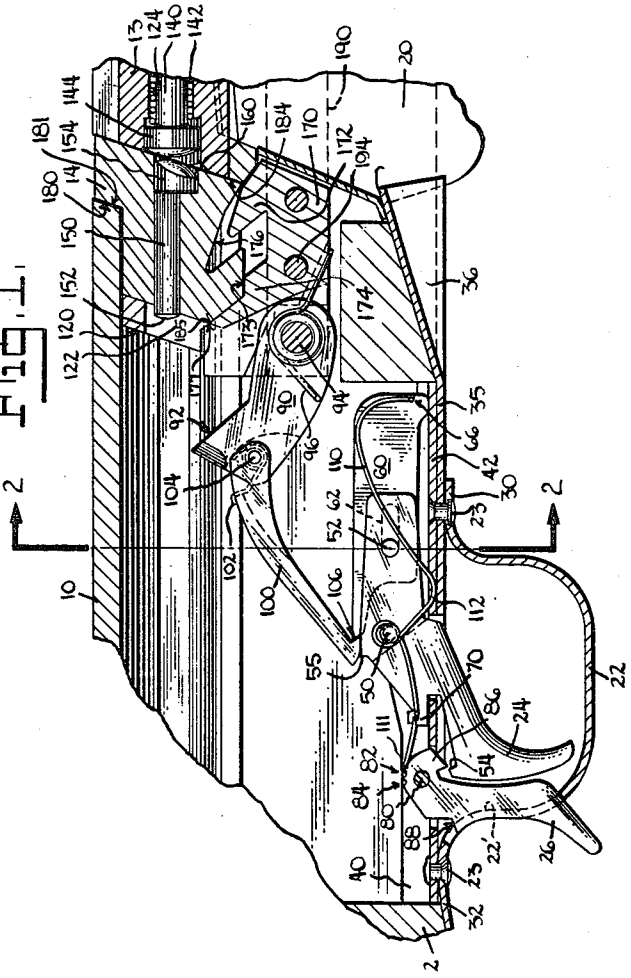
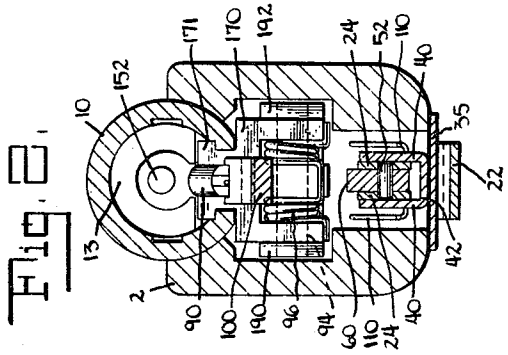


Fig. 2.

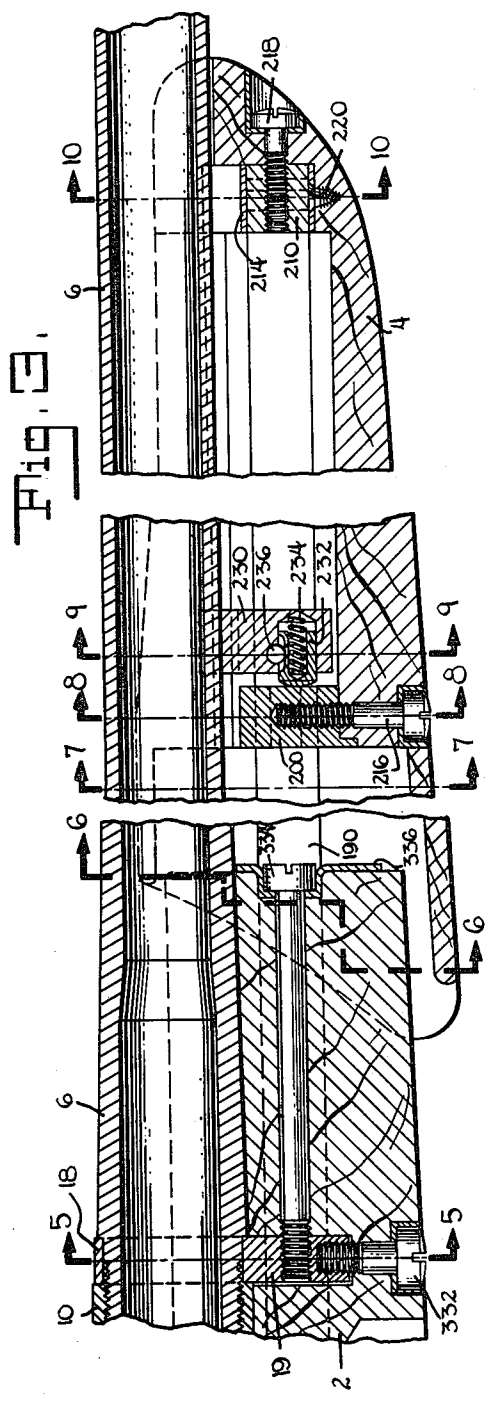


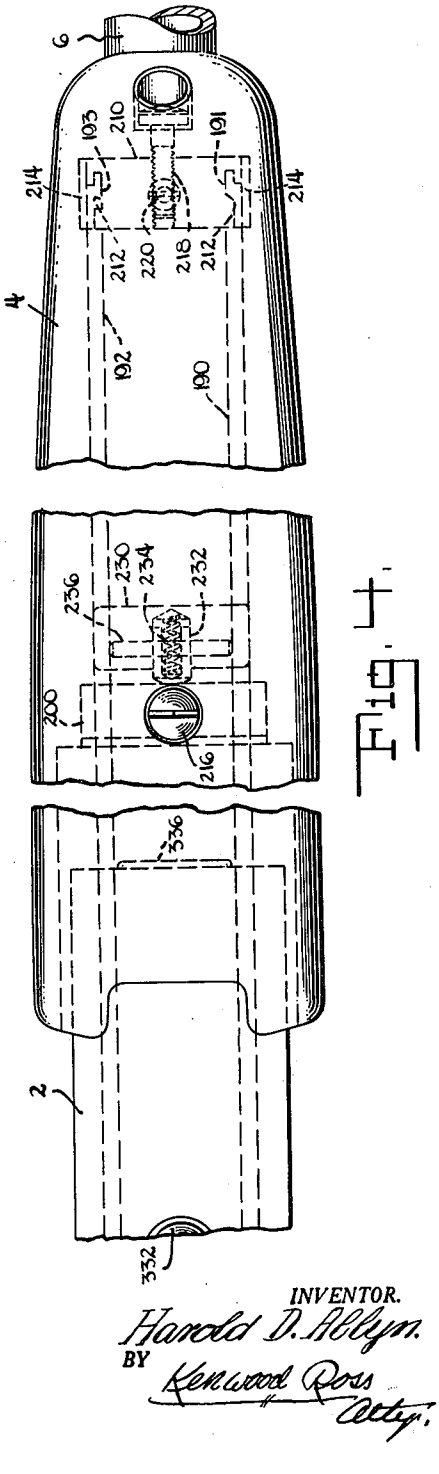
INVENTOR.
Harold D. Allyn.
BY Kenwood Ross
Atty.

Jan. 29, 1963 H. D. ALLYN 3,075,313

BREECH BOLT FIREARM WITH MOVABLE FOREARM AND ACTION BARS

Original Filed Feb. 17, 1956 3 Sheets-Sheet 2





INVENTOR.
Harold D. Allyn.
BY
Kenwood Ross
Atty.

Jan. 29, 1963 H. D. ALLYN 3,075,313

BREECH BOLT FIREARM WITH MOVABLE FOREARM AND ACTION BARS

Original Filed Feb. 17, 1956 3 Sheets-Sheet 3

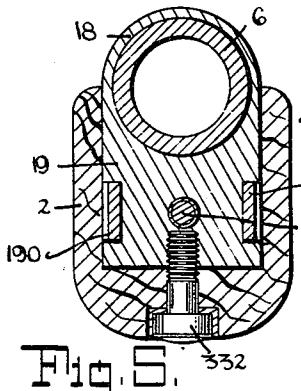


Fig. 5.

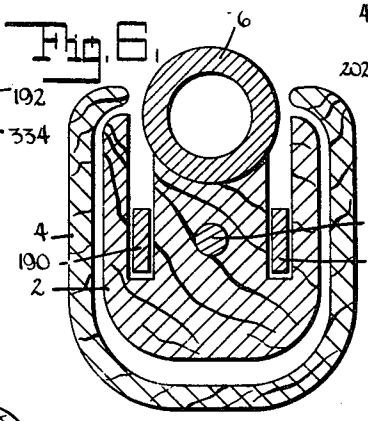


Fig. 6.

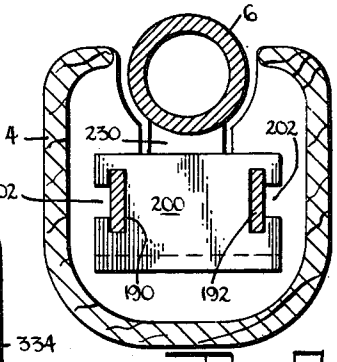


Fig. 7.

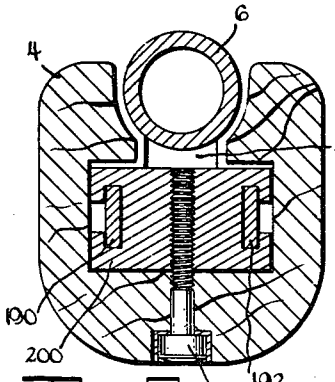


Fig. 8.

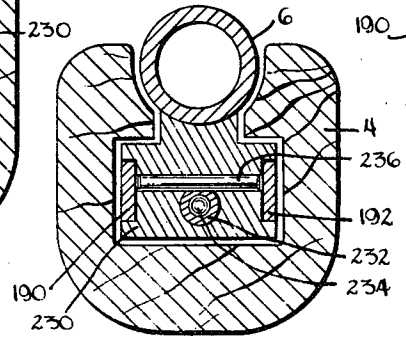


Fig. 9.

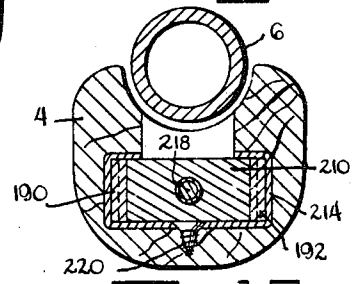


Fig. 10.

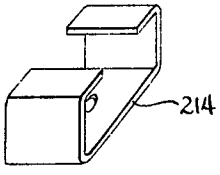


Fig. 12.

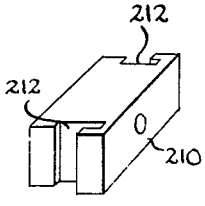


Fig. 11.

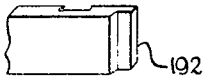


Fig. 13.

INVENTOR.
Harold D. Allyn
BY Kenwood Ross
Atty.

United States Patent Office

3,075,313
Patented Jan. 29, 1963

3,075,313

BREECH BOLT FIREARM WITH MOVABLE FOREARM AND ACTION BARS

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

Continuation of application Ser. No. 566,267, Feb. 17, 1956, now Patent No. 2,922,240, dated Jan. 26, 1960. This application Jan. 25, 1960, Ser. No. 4,292

6 Claims. (Cl. 42—71)

My invention is directed to the provision of new and useful improvements in breech loading firearms and having widest application in forearm slide actuated types thereof.

Cognate subject matter, not claimed herein, is embraced in my companion copending application bearing Serial Number 566,267 and filed Feb. 17, 1956, now Patent 2,922,240 issued January 26, 1960, of which this application is a continuation.

It is a principal object of the present invention to provide a novel and improved firearm construction having a top and rear overlapping forearm on a one piece stock.

A primary purpose hereof is to provide structural and operational improvements which not only simplify the structure as such, but also provide important distinct advantages in strength, durability, efficiency of operation, and the like.

Another object of the invention is to provide a firearm action wherein a pair of action bars support the major portion of the operating mechanism by means of a T-shaped slide block which is reciprocable in a complemental T-shaped slot in the receiver.

It is still another object hereof to provide a construction of the above described character in which the number of operating parts is greatly reduced, which is compact in the organization of its components, distinctive in its appearance, practical in its value, reliable in its operation, and efficient in its use.

Another salient object is to provide a device which is constructed of relatively simple parts which are adapted to be readily assembled and which when once assembled are positively and securely retained in operative relationship and which are not accidentally separable from each other.

The concept of the firearm of the invention has been made with attendant manufacturing problems fully in mind and with special regard to the possibility of making many of the components thereof from stampings and screw machine parts.

Other prime objects of my invention include: first, the attainment of a higher speed of construction and assembly of the device due to its simplification of design and its unique composition of parts; second, the achievement of a greater ease in adjustment and repairs; and third, the provision of an improved firearm which may be made more economically and with fewer operations in the manufacture of its parts, as well as in the assembly of the same, than prior devices known in the art.

Further objects and advantages of my invention will become apparent as the following description proceeds, and the features of novelty which characterize the invention will be pointed out with particularity in the claims annexed to and forming part of this specification.

The invention basically contemplates certain new fundamental principles of design, although it is to be understood that such principles could be applied to types of firearms other than shotguns, whether gas or recoil operated, and whether of the automatic, semi-automatic or pump action types, with equal utility. It will be appreciated that the utility and application of the weapon described herein extend beyond the particular type of weapon illustrated and comprehend the useful and novel

features set forth when incorporated in other types of firearms as well.

Stated otherwise, this invention may be embodied in other specific forms without departing from the essential characteristics thereof as set forth herein in the single example of a physical embodiment of the invention. The present embodiment is to be considered, in all respects, merely as being illustrative and not as being restrictive. All modifications and variations as fall within the meaning and purview and range of equivalency of the claims are therefore intended to be embraced therein.

The repeating or pump action type of shotgun of conventional designs has a single barrel fed from a tube type magazine, normally disposed beneath the barrel. The breech mechanism is linked mechanically to a forearm surrounding the magazine. When the gun is fired, the operator merely manipulates the linkage to produce the action necessary to clear the gun of the empty shell and to feed another shell into the chamber. The operator must load the magazine initially, after which he has only to pull the trigger to fire the gun and to manipulate the action to reload after firing. Such type is known variously as "slide," "repeater," "pump-action," or "trombone-action."

Shotguns of the automatic type are "autoloading" rather than automatic, the accepted version of an "automatic" gun being one which fires continuously as long as the trigger is held depressed. Automatic shotguns must have the trigger pulled for each shot. Such shotguns are generally recoil operated, wherein the "kick" of the propelling gases is utilized to perform all of the phases incident to the operation of the firearm, except the pulling of the trigger after the magazine is loaded and the feeding of the first shell into the chamber, which acts are performed manually.

The shotgun represented herein is a repeating, pump or slide action, top/side-ejection, manually operated shoulder firearm of the concealed hammer type.

It is emphasized, however, that such shotgun is shown merely for purposes of illustration, the mechanism of this invention being adapted for other types of firearms including the automatic, semi-automatic, and hand operated types.

To the above cited ends and objectives, various and ancillary features and advantages of the invention will become more readily apparent as this description proceeds. The invention consists in certain features of novelty, in a mode of operation, and in a unique combination and organization of components as will be hereinatfer more fully described and referred to in conjunction with the accompanying drawings wherein:

FIG. 1 is a sectional view of the firearm showing parts in hammer cocked, safety off, ready-to-fire position;

FIG. 2 is a sectional view on the line 2—2 of FIG. 1;

FIG. 3 is a longitudinal sectional view through the forearm and barrel of the firearm;

FIG. 4 is an inverted plan view of features of the mechanism shown in FIG. 3;

FIG. 5 is a sectional view on the line 5—5 of FIG. 3;

FIG. 6 is a sectional view on the line 6—6 of FIG. 3;

FIG. 7 is a sectional view on the line 7—7 of FIG. 3;

FIG. 8 is a sectional view on the line 8—8 of FIG. 3;

FIG. 9 is a sectional view on the line 9—9 of FIG. 3;

FIG. 10 is a sectional view on the line 10—10 of FIG. 3;

FIG. 11 is a perspective view of the front action bar spacer of the invention;

FIG. 12 is a perspective view of the front action bar retaining clip of the invention; and

FIG. 13 is a fragmentary perspective view of the front end of the right hand action bar of the invention.

In the following description and claims, various details will be identified by specific names for convenience. These names, however, are intended to be as generic in their application as the art will permit.

Referring now to the drawings more in detail, in which similar characters of reference indicate corresponding parts in the several figures, and referring more particularly to the form of my invention selected for illustrative purposes, I have shown in FIGS. 3 and 4 a portion of a gun as including a stock 2 and forearm 4, which components may be made of wood, plastic, metal or equivalent material.

It will be observed that forearm 4 overlaps the top and forward portion of stock 2.

These members are associated with a barrel 6, a receiver 10, a breech bolt 13, a bolt locking lug 14, a magazine shell 20, a trigger guard 22, a trigger 24 and a safety 26, as will be best observed in FIGS. 1 and 2, same being sectional views of the midsection of the firearm.

Receiver 10 is substantially round in shape, although it may be rectangular or otherwise irregular in shape within the spirit of this invention.

The bottom of receiver 10 is hollowed for the reception of parts in the well known manner.

The trigger mechanism generally incorporates the fire control elements of the firearm and includes said trigger guard 22, an irregularly shaped member of conventional design having forward and rear tangs 30 and 32 respectively. Rear tang 32 is provided with a suitable aperture to accommodate a guard screw (not shown) for securing trigger guard 22 to the grip of stock 2 at the rearward end of trigger guard 22.

The trigger guard is also attached to a trigger housing, to be described, by means of rivets or screws 23 forwardly and rearwardly of a bowed portion of said trigger guard.

The rearward part of the bowed portion of trigger guard 22 is slotted as at 22' to accommodate safety 26 rearwardly of trigger 24.

A loading guide 35, having a relatively flat elongated portion and a centrally disposed concavity or dimple 36 at its forward end, guides the cartridge or shell into the magazine and is secured to the stock by means of loading guide screws (not shown).

A U shaped trigger housing is provided having spaced opposite side walls 40 and 40 extending generally vertically upwardly from a transverse bottom wall 42 disposed therebetween.

The rear end portion of loading guide 35 is locked between forward tank 30 of trigger guard 22 and bottom wall 42 of the trigger housing.

Trigger 24 is pivotally mounted relative to the trigger housing by means of a trigger pivot pin 50 engageable through the side walls 40 and 40 of the trigger housing. Forwardly of such pivotal mounting, trigger 24 is provided with a bifurcated or slotted forwardly-facing portion. A transversely extending sear pin 52 extends through the spaced walls thereof and the slot therebetween. Sear pin 52 is adapted for engagement within and extension through a slot 62 in a sear 60 which extends into the slot of the trigger. By this coaction, relative movements of trigger 24 and sear 60 are controlled.

The uppermost face of trigger 24, rearwardly of its pivotal mounting, is notched at 70, for purposes shortly to be set forth.

Safety 26 is of the manually operable type and positively blocks inadvertent trigger operation when the firearm is loaded and cocked. It is pivotally mounted in the trigger housing rearwardly of trigger 24 by means of a safety pivot pin 80 extending transversely through and between side walls 40 of the trigger housing.

The uppermost portion of safety 26 is provided with a pair of spaced notches or detents, including a forward notch 82 and a rearward notch 84, for purposes as will hereinafter appear.

Forwardly of its pivotal mounting, safety 26 is provided with a trigger engaging projection 86 adapted to engage a safety engaging notch 54 of trigger 24. A projection of the trigger immediately adjacent safety engaging notch 54 is mated with a complemental notch of safety 26, adjacent its projection 86 when the trigger is pulled, as will be best appreciated by reference to FIG. 1.

Projection 86 is movable downwardly and rearwardly as safety 26 is moved rearwardly to "On" position so as to block the rearward movement of trigger 24 and thereby prevent discharge of the firearm.

Rearwardly of its pivotal mounting, safety 26 is provided with a flat 88 which is adapted to abut the underside of bottom wall 42 of the trigger housing, when the safety is pivoted rearwardly, to prevent continued further rearward movement thereof.

Forward movement of safety 26 beyond its "Off" position is precluded by abutment with the rear end of trigger 24 so as to prevent the safety from moving beyond the limit of detent 82.

The bottom of the slot 22' cut centrally of the rear of trigger guard 22 also serves as a safety stop.

When trigger 24 is pulled to discharge the firearm, excessive rearward movement thereof is precluded by the safety.

The hammer 90 is an irregularly shaped member of uniform thickness and has a flat front face 92 which functions as the striking surface thereof. Said face 92 is inset to provide a clearance cut for the rearward surface of bolt locking lug 14.

Hammer 90 is pivoted on a hammer pivot pin 94 which extends between the left and right hand action bars 190 and 192 respectively and is centrally hung within a slot centrally disposed in the rear of slide block 170.

Hammer 90 is actuated by the hammer spring 96, of the mousetrap or torsion type, which extends around hammer pivot pin 94 on both sides of the hammer. That is, hammer spring 96 is mounted around pin 94 bearing on the bottom of slide block 170 at its opposite ends and around the hammer 90 at its center in manner to drive the hammer upwardly forwardly.

Hammer 90 is held in cocked position by means of a hammer hook 100 which is held under a constant downward tension by a hammer hook spring 102. Hammer hook 100, at its uppermost extremity, is held in pivotal relationship with hammer 90 by means of a hammer hook pin 104.

Hammer hook 100 is provided at its opposite lowermost extremity, with a sear notch 106 which engages a rearwardly facing sear point on the rearward upper extremity of sear 60.

The forward end of sear 60 bears downwardly upon the upper surface of bottom wall 42 of the trigger housing.

As sear pin 52 extends through the spaced walls of the forward portion of the trigger 24 and is loosely receivable through the slot 62 in sear 60, the sear 60 is permitted to move between a forward position, as shown in FIG. 1, and a rearward position.

Hammer spring 96 exerts a pressure upon hammer 90 and hammer hook 100 pivoted thereto which pressure is sufficient to overcome the action of the sear/trigger/safety spring 110 (described below) and to bring sear 60 to its forward position.

The sear/trigger/safety spring 110 is an irregularly shaped spring member disposed on both sides of the trigger housing and looped at its midsection around trigger pivot pin 50. An upward pressure provided by this looped portion is exerted on annular grooves (not shown) cut in said pin whereby said spring 110 functions to retain and hold said pin 50 in position.

The sear/trigger/safety spring 110 has a rearmost transversely extending extremity 111 for exerting a down-

ward pressure in notch 84 of safety 26 to keep said safety in "On" position, or in notch 82 to keep said safety in "Off" position.

The lower intermediate portion 112 of sear/trigger/safety spring 110 extends downwardly to bear against the surface of loading guide 35.

A forward extremity of member 110 is receivable in a notch 66 in the forward end of sear 60 to exert a constant rearward and downward pressure on said forward end.

When trigger 24 is pulled rearwardly to discharge the firearm, it rotates on its pivot so that the forward extremity thereof is actuated downwardly, so as to force sear pin 52 downwardly.

The rear end of sear 60 is thereby depressed downwardly relative to the trigger so that the sear point of the sear is disengaged from sear notch 106 on hammer hook 100. Hammer hook 100 is thus released whereby hammer 90, under the tension of hammer spring 96, falls so as to bring about the firearm's discharge.

Sear 60, under the downward and rearward tension of spring 110 at its front end move rearwardly upon the release of the tension of hammer spring 96 until further rearward movement is precluded by pin 52 striking the front end of slot 62 in said sear.

Hammer hook 100 is of greater width than sear 60 so that said hammer hook 100 is prevented from entering into the slot of trigger 24. The topmost edge of sear 60 serves as a track for the hammer hook 100 to move forwardly therealong.

If trigger 24 is then manually released, it rotates by virtue of the downward tension of the sear/trigger/safety spring 110 engageable therewith in notch 70 thereof.

The forward end of trigger 24 moves upwardly, carrying sear pin 52 upwardly therewith, whereby sear 60 is moved relative to sear pin 52 due to the downward and rearward pressure of the sear/trigger/safety spring 110. This also drives the rear end of sear 60 upwardly, as the trigger is released.

It will thus be appreciated that sear/trigger/safety spring 110 performs four specific functions: it provides a downward and rearward pressure on the front end of sear 60; it provides an upward pressure on trigger pivot pin 50 to retain same in the trigger housing; it provides a downward pressure on the rear of trigger 24; and it acts as a safety detent spring to hold safety 26 in one or the other of its operating positions.

The breech bolt 13 is of cylindrical shape, complementary to the inside of receiver 10, and is constrained to straight fore and aft movements relative thereto. It has a rearmost inclined face 120 having a centrally and longitudinally disposed slot 122 extending inwardly therefrom.

The front face of breech bolt 13 is flat and circular and, in the case of a shotgun, has a diameter corresponding approximately to the diameter of the base of the cartridge.

A longitudinal bore 124 extends through breech bolt 13 in which a firing pin 140 is receivable for longitudinal reciprocatory movements therein. Said firing pin is adapted to extend forwardly through the center of the front face of the breech bolt in a forward position, when the firing pin is struck, and to be retirable to a rearward position by means of a firing pin retracting spring 142 which surrounds firing pin within the longitudinal bore 124.

Said bore is provided with a shoulder (not shown) on which a forward end of spring 142 seats. The rearward end of firing pin 140 is provided with an enlarged head 144 in manner to define a forwardly facing shoulder on which the rearward end of spring 142 seats, all to the end that positive supports are provided for said spring when same is interposed therebetween.

In a rearward portion of breech bolt 13, an inclined vertically-extending elongated slot is provided in which is receivable a bolt locking lug 14.

A horizontally centrally-disposed opening extends through bolt locking lug 14 and has an enlarged diameter at its forward end so as to provide a shoulder, as shown. A firing pin extension 150 is slidably receivable within the opening and has a rearwardly-facing extremity 152 adapted to be struck by face 92 of hammer 90 upon discharge and an enlarged forwardly facing rounded head 154 which is engageable with the rounded head 144 of the firing pin 140. Said rounded head 154 is of such dimension as to define a shoulder immediately rearwardly thereof which functions as a stop to prevent any excess of rearward motion of firing pin extension 150 within the bolt locking lug opening.

The spherical surface of the rounded head 154 functions as a camming surface. In the course of its camming action, it bears upon a circular cam cut 160 at the bottom of the lower portion of the counterbore in the breech bolt 13 in which head 144 of firing pin 140 nests.

When hammer 90 is down and firing pin extension 150 is in the fired or forward position, the downward movement of bolt locking lug 14, as the action is opened, cams firing pin extension 150 rearwardly as the spherical surface of rounded head 154 contacts the circular cam cut 160 in the breech bolt 13.

Firing pin 140 is thereupon free to move rearwardly under the tension of firing pin retracting spring 142 to assume a rearwardmost position.

Upon discharge, face 92 of hammer 90 strikes firing pin extension 150 forcing same forwardly so as to drive firing pin 140 forwardly to effect firing in known manner.

Said slide block 170 is disposed beneath bolt locking lug 14, when the action is closed. Structurally, it includes a pair of spaced upwardly-extending cam portions (a forward cam 172 and a rearward cam 174) on the upper surface thereof.

A cam-receiving opening 176 is provided in the bottom of bolt locking lug 14 to receive forward cam 172.

When slide block 170 is retracted, forward cam 172 contacts the lower cam surface in opening 176 of bolt locking lug 14 forcing said bolt locking lug downwardly so as to move the upper locking surface 180 of said bolt locking lug out of position in its respective slot in the receiver, to unlock the firearm, and to allow the breech bolt to move rearwardly.

When the breech bolt moves forwardly to close or load the firearm, the opposing surface of bolt locking lug 14 contacts a surface 184 of the receiver wherefor further forward travel of the breech bolt 13 is precluded and the front face of the breech bolt is prevented from causing possible damage to the rear end of the barrel or, in the case of a shotgun, the cartridge rim cut in the chamber of the barrel should the chamber be empty. The forwardly extending or front face of the rearward cam 174 acts on the cam surface 177 of the bolt locking lug to cam same upwardly and lock the recoil surface 180 of the bolt locking lug 14 against the bolt locking shoulder 181 of the receiver.

When bolt locking lug 14 is in its uppermost position, continued forward movement of slide block 170 brings the surface 173 thereof beneath the lower rear end of the bolt locking lug 14 so as to lock same in place. Slide block 170 then continues forwardly until it is stopped by the contact of the front face 185 of the upper portion of the slide block with lower rear surface 177 of bolt locking lug 14.

The upper rearward portion 171 of slide block 170 is T shaped in section and fits into a complemental groove or slot in the receiver so that the bolt locking lug is solidly locked in the receiver.

The forward point of firing pin 140 is prevented from striking the primer of a cartridge in the chamber before the breech bolt of the firearm is locked by two methods. Firstly, as the unlocking or dropping down of bolt locking lug 14 unlocks the firearm and misaligns firing pin 140 and firing pin extension 150, the forward point of

the firing pin could not be made to protrude forwardly of the front face of the breech bolt even if it were possible to strike the rear end of firing pin extension **150** with hammer **90**.

Secondly, before bolt locking lug **14** can be cammed downwardly, slide block **170** must be moved rearwardly by means of the action bars and associated component parts until forward cam **172** of the slide block is in contact with the lower cam surface in the opening **176** of bolt locking lug **14**. As the face of hammer **90** almost contacts the angular cut on the slide block when the hammer is down (which position is not shown), it is apparent that, before the lug on the slide block even contacts bolt locking lug **14**, the hammer, in its most forward position, cannot reach the rear end of the firing pin extension.

The laterally spaced forwardly extending action bars are of a pair, a left hand action bar **190** and a right hand action bar **192**, and are secured at their rearmost extremities to the opposite sides of slide block **170** as by rivets or screws **194** or brazing or the like so as to be slidable forwardly and rearwardly therewith.

Slide block **170** extends into the receiver and the action bars **190** and **192** are slidable under the receiver and are guided relative thereto by corresponding slots in the lower portion **19** of the recoil shoulder **18** and the action bar guide **230** for suitable reciprocation, as shown in FIGS. 5 and 9. As aforesaid, the rearward upper portion of slide block **170** is T shaped and is receivable through a suitable complementary slot in the lower side walls of the receiver to provide a firm support for the slide block and action bars. See FIG. 2.

The forward extremities of action bars **190** and **192** are supported in manner now to be described. A rear action bar spacer **200** is provided intermediate said action bars. The bars are retained in said spacer by means of a pair of parallel slots **202** and **202** extending longitudinally through the rear action bar spacer adjacent the opposite sides thereof, and in which slots the action bars are seated, as shown in FIGS. 7 and 8.

Forwardly of the member **230**, a front action bar spacer **210** is provided intermediate the forward extremities of the action bars. The forward extremities of each of the action bars are provided with insets as at **191** and **193** respectively (as shown in FIG. 4) and are receivable in mating slots **212** in the opposite side walls of the front action bar spacer **210**.

A front action bar retaining clip **214** defines a more or less rectangular shape and is receivable over the outside walls of the front action bar spacer **210** and the ends of action bars **190** and **192** associated therewith so as to lock said action bars to said front action bar spacer, as shown in FIGS. 4 and 10.

Said forearm **4** is secured to the front and rear action bar spacers **210** and **200** respectively.

A rear forearm screw **216** extends upwardly through forearm **4** and is threadedly engageable with rear action bar spacer **200**, as shown in FIGS. 3 and 8.

A front forearm screw **218** extends inwardly and through the forward end of forearm **4** and is threadedly engageable with front action bar spacer **210**, as illustrated in FIG. 3.

A front forearm retaining clip screw **220** is receivable through front action bar retaining clip **214** and is threadedly engageable with forearm **4**, as shown in FIGS. 3 and 10.

By such arrangement, it will be appreciated that forearm **4** is thus permitted to reciprocate forwardly and rearwardly with action bars **190** and **192**.

An action bar guide **230** is soldered, brazed, screwed or otherwise secured to barrel **6** and extends downwardly therefrom, as shown in FIGS. 3 and 9.

A guide plunger **232** is movable forwardly and rearwardly within a guide plunger opening extending inwardly from the rear face of action bar guide **230**. The guide plunger normally extends rearwardly and outwardly due to the pressure of a guide plunger spring **234** having an inner end nestable within the guide plunger **232** and having an outer end seatable in the bottom of the guide plunger opening, as shown in FIG. 3.

A guide plunger pin **236** extends through an opening in action bar guide **230** and extends transversely of and slightly into the guide plunger opening in manner to prevent guide plunger **232** from disengaging with action bar guide **230**. Said pin is retained in its proper position by means of the assembled action bars, as illustrated in FIGS. 4 and 9.

Guide plunger **232** has an uppermost surface provided with an inset portion intermediate the opposite ends thereof whereby forward and rearward movements of said guide plunger within predetermined limits is facilitated.

The rear end of barrel **6** is threaded for a short distance and is threadedly engageable with the forward end of the receiver.

A recoil shoulder **18** is fixed to the rear end of barrel **6** and surrounds same adjacent receiver **10** and is held in place by the pressure of said barrel in threaded engagement with the receiver, as shown in FIGS. 3 and 5.

A downwardly depending portion **19** of recoil shoulder **18** receives, in an upwardly extending opening through the lowermost edge portion thereof and in threaded engagement therewith, a bedding screw **332** which secures the forward end of stock **2** to barrel **6** and receiver assembly, as shown in FIG. 5 and FIG. 3.

Forwardly of said bedding screw, a recoil bolt **334** extends longitudinally through an opening extending from the forward or front end of the stock. The head end of said screw abuts a recoil plate **336** fixed to the front end of stock **2**. The recoil bolt **334** is in threaded engagement with the downwardly depending lower portion **19** of recoil shoulder **18**.

The forearm may be reciprocated forwardly and rearwardly. As same is accomplished, action bars **190** and **192**, slide block **170**, bolt locking lug **14**, breech bolt **13**, and attached mechanisms including firing pin **140** and firing pin extension **150**, hammer **90**, and hammer hook **100** are likewise reciprocated.

If trigger **24** is held back during the rearward movement of the components, the sear **60**, relieved of the tension of hammer spring **96**, is forced to its most rearward position, as allowed by the sear slot **62**, by the force of sear/trigger/safety spring **110**.

When bolt **13** is moved forwardly, and with the trigger still held rearwardly, sear notch **106** on hammer hook **100** catches in the sear **60** by engaging on the sear point. The tension of hammer spring **96**, through hammer **90** and hammer hook **100**, overcomes the tension of sear/trigger/safety spring **110** whereby sear **60** is moved forwardly along sear pin **52** until hammer hook **100** is stopped by a projection **55** on trigger **24** and is held there as long as said trigger is held back.

When trigger **24** is released, the tension of sear/trigger/safety spring **110** exerts a downward pressure so as to force the forward end of said trigger and sear pin **52** upwardly whereby the rear end of sear **60** is urged upwardly, the forward end of sear **60** being held downwardly and in contact with the trigger housing by means of the downward and rearward pressure exerted by sear/trigger/safety spring **110**.

As trigger **24** reaches its forward position, the rearmost end of sear **60** is moved upwardly. Sear **60** carries with it hammer hook **100**, which is under the tension of hammer spring **96**. The forward and upward pressure of hammer hook **100** aids the upward movement of the rear end of sear **60**.

When the end of hammer hook **100** reaches the top of projection **55** on trigger **24**, hammer hook **100** pushes sear **60** forwardly under its greater pressure until the sear is stopped by pin **52** through slot **62** in sear **60**, where-

for the parts assume the position shown in FIG. 1 where the trigger is again ready to discharge the firearm.

While I have illustrated and described the invention as embodied in a specific arrangement, I do not intend to be limited to the details shown since various modifications and structural changes may be made without departing in any way from the spirit of the invention. Without further analysis, the foregoing is intended to so fully reveal the gist of my invention 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, and therefore, such adaptations should and are intended to be comprehended within the meaning and range of equivalence of the claims below.

What it is desired to claim and secure by Letters Patent of the United States is:

1. In a firearm of the forearm slide actuated type inclusive of a one-piece stock and a grooved receiver fixed intermediate the stock and having a breech bolt receiving chamber and a breech bolt reciprocable in the chamber of the receiver and a breeched barrel engaged with the receiver and the stock, the improvement comprising a train of elements including, a forearm having uppermost and rearmost portions overlapping the stock and being reciprocable in fore and aft directions relative to the stock as the breech bolt is reciprocated in the receiver, a slide block-action bars assembly reciprocable in the stock and within the groove of the reeciver, a rear action bar spacer having a plurality of slots and being disposed intermediate the action bars of said assembly, a front action bar spacer having a plurality of slots and being disposed intermediate the action bars of said assembly, the action bars of said assembly being accommodated in the slots of said front and rear action bar spacers, said forearm being secured to said rear and front action bar spacers whereby said forearm and assembly are actuatable simultaneously in concomitant movements.

2. In the firearm as set forth in claim 1, including the rearward end of said forearm overhanging the forward end of said stock, a downwardly depending action bar guide having a plurality of slots and being held rigid relative to the receiver by the barrel, said slide block-action bar assembly being slidably receivable within the slots of said action bar guide, said forearm constituting a grip for one of the hands of the operator with said stock constituting a grip for the other of the hands.

3. In the firearm as set forth in claim 1, including, a front action bar retaining clip receivable over said front action bar spacer and the action bars of said assembly for locking the action bars of said assembly to said front action bar spacer.

4. In a firearm of the forearm slide actuated type inclusive of a one-piece stock and a grooved receiver intermediate the stock and having a breech bolt receiving chamber and a breech bolt reciprocable in the chamber of the receiver and a breeched barrel engaged with the receiver and stock with a recoil shoulder fixed to the barrel adjacent the receiver, the improvement comprising a train of elements including, a forearm having upper and rear portions overlapping the stock and being reciprocable in fore and aft directions relative to the stock as the breech bolt is reciprocated in the receiver, a slide-block slidable in the groove of the receiver, a pair of action bars fixed to and reciprocable with said slide block an action bar guide having a plurality of slots and depending from the barrel and slidably supporting said action bars in the slots thereof, a rear action bar spacer having a plurality of slots and being disposed intermediate said action bars and slidably supporting said action bars in the slots thereof, a front action bar spacer having a plurality of slots and being disposed intermediate said action bars and slidably supporting said action bars in the slots thereof, said forearm being secured to said rear and front action bar spacers whereby said forearm and slide block and action bars are actuatable simultaneously in concomitant movements.

5. In the firearm as set forth in claim 4, including, a recoil bolt-bedding screw assembly fixed to the stock, and with the bedding screw of said assembly securing the stock to the barrel and the recoil bolt of said assembly being threadedly engaged with the recoil shoulder for facilitating absorption of recoil by the front end of the stock.

6. In a firearm inclusive of a one piece stock and a grooved receiver fixed to the stock and having a breech bolt receiving chamber and a breech bolt reciprocable in the chamber of the receiver and a breeched barrel engaged with the receiver and the stock, the improvement comprising a train of elements including, a forearm having uppermost and rearmost portions overlapping the stock and being reciprocable in fore and aft directions relative to the stock as the breech bolt is reciprocated in the receiver, a slide block-action bars assembly reciprocable in the stock and within the groove of the receiver, an action bar guide having a plurality of slots and being attached to the barrel and slidably supporting the action bars of said assembly in the slots thereof, said forearm being fixedly engageable with the action bars of said assembly whereby said forearm and slide block-action bar assembly are actuatable simultaneously in concomitant movements, a front action bar retaining clip disposable over said front action bar spacer and the action bars of said assembly, a rear forearm screw extendable through said forearm and threadedly engageable with said rear action bar spacer, and a front forearm screw extendable through said forearm and threadedly engageable with said front action bar spacer.

References Cited in the file of this patent

UNITED STATES PATENTS

599,835	Ehbets	Mar. 1, 1898
1,037,486	Johnson	Sept. 3, 1912
1,165,976	Johnson	Dec. 28, 1915
1,355,316	Cox	Oct. 12, 1920
1,410,054	Bozeman	Mar. 21, 1922
2,353,679	Loomis	July 18, 1944
2,373,622	Williams	Apr. 10, 1945
2,527,895	Tassan	Oct. 31, 1950
2,587,937	Waltke	Mar. 4, 1952
2,594,354	Schnepel	Apr. 29, 1952
2,751,702	Crittendon et al.	June 26, 1956
2,863,247	Benson	Dec. 9, 1958