

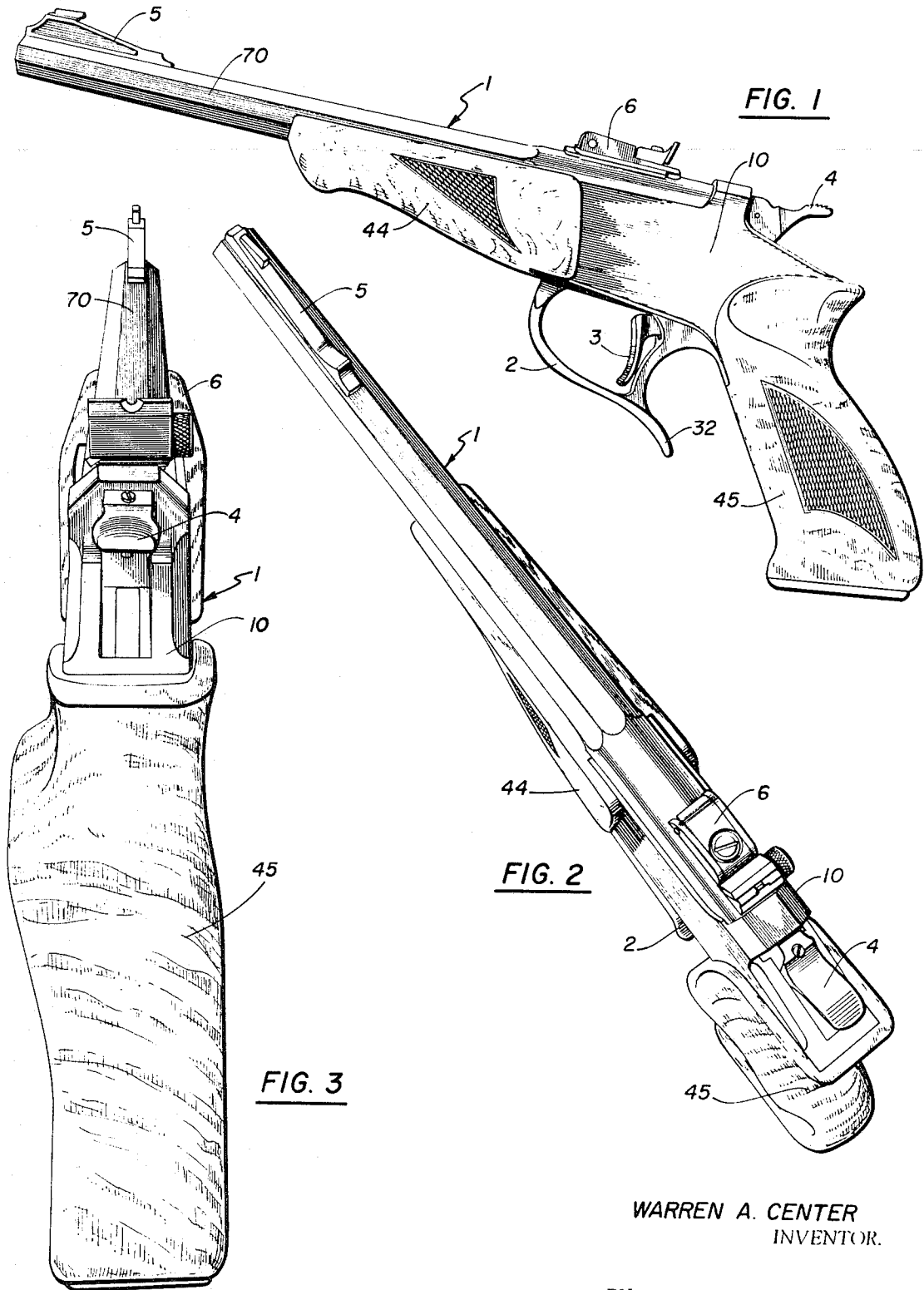
Feb. 9, 1971

W. A. CENTER
PISTOL WITH MEANS ACTUATING THE BARREL LATCH AND SETTING
THE TRIGGER MECHANISM AND SAFETY

3,561,149

Filed Oct. 9, 1968

3 Sheets-Sheet 1



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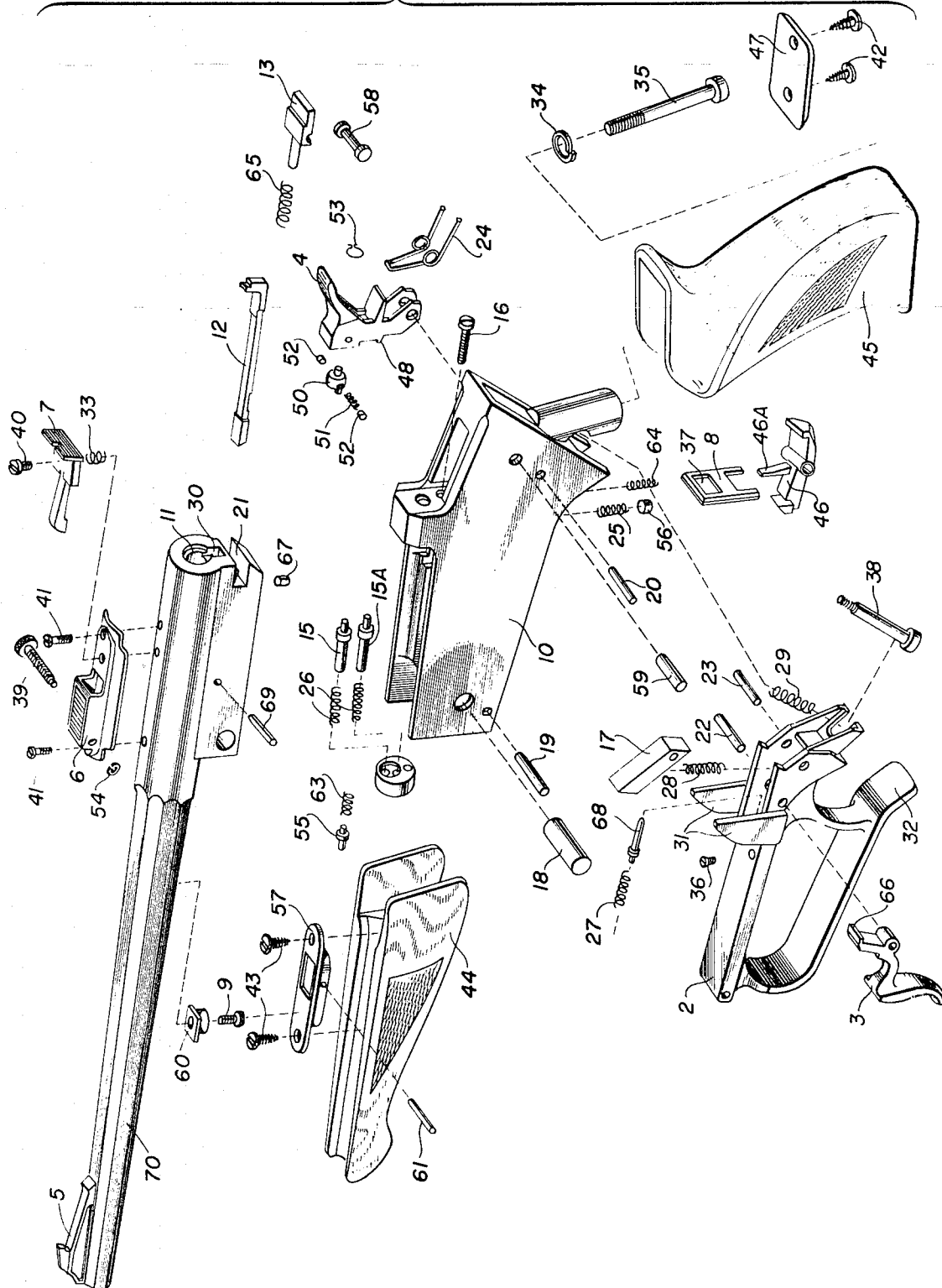
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FIG. 4



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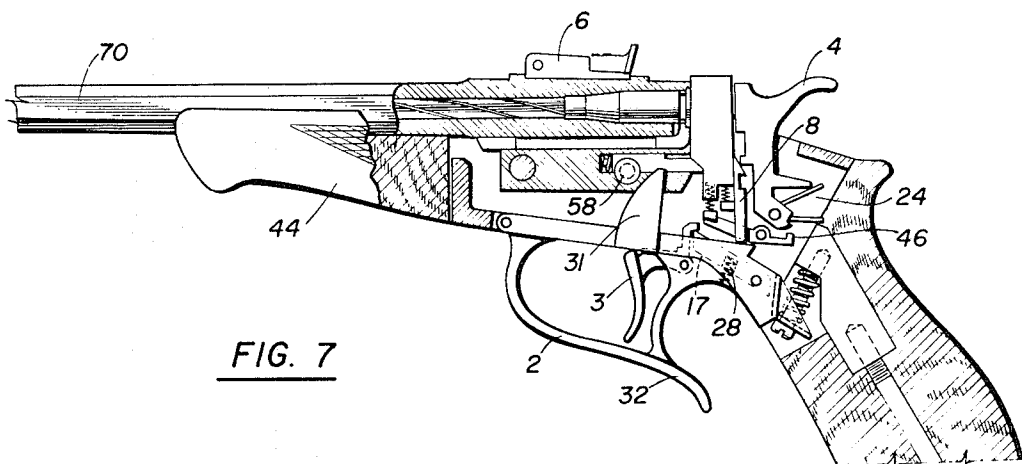
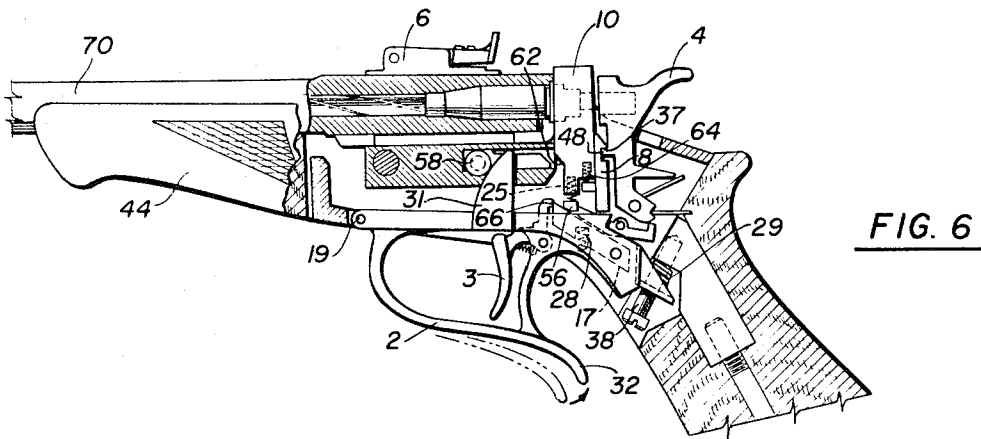
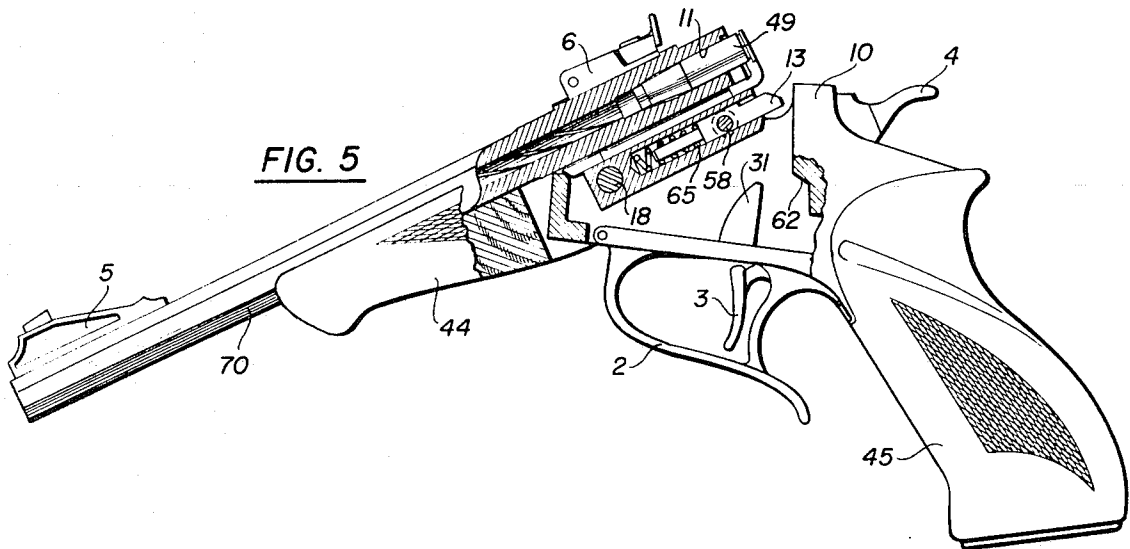
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**PISTOL WITH MEANS ACTUATING THE BARREL
LATCH AND SETTING THE TRIGGER MECHANISM AND SAFETY**

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9 Claims

ABSTRACT OF THE DISCLOSURE

A pistol having a horn associated with the trigger guard for opening the breech and having separate means for locking the trigger and cocking the hammer.

BACKGROUND OF THE INVENTION

In designing a pistol for very accurate shooting, as in target shooting and the shooting of woodchucks and the like, it is common practice to manufacture the pistol as a single shot device. When a long bore is desired for accuracy in shooting, such pistols have always been very long and unwieldy. Furthermore, the opening of the breech has always required the use of the hand not holding the gun; this makes it awkward for this hand also to be used for inserting a new cartridge. In the case of most pistols, there has always been the danger of the hammer falling and firing the cartridge before the breech is entirely closed. There is also the problem that, if the thumb slips off the hammer in cocking, the pistol can fire accidentally. On the other hand, it is desirable that the trigger mechanism be in ready position and awaiting only the cocking of the hammer to be ready for firing. These and other difficulties experienced with the prior art devices have been obviated in a novel manner by the present invention.

It is, therefore, an outstanding object of the invention to provide a pistol which, in one manual operation, permits the lifting of a hinged trigger guard up into the receiver, sets the trigger, retracts the bolt allowing the action to open for loading, and activates a safety.

Another object of this invention is the provision of a single shot pistol whose breech can be opened with the same hand which holds the gun.

A further object of the present invention is the provision of a pistol having a unique safety device which automatically separates the hammer nose from the firing pins and locks the hammer in a safe position upon breaking the action for loading or unloading.

It is another object of the instant invention to provide a pistol in which the trigger is locked and the hammer is cocked separately.

A still further object of the invention is the provision of a pistol having an efficient mechanism for the function and safe operation of a firearm having both interchangeable barrels and a variety of calibers so as to permit the use of rimless center-fire and rim-fire cartridges.

It is a further object of the invention to provide a pistol having a hammer nose which rotates and locks in position upon manual selection permitting the selective striking of either of two separate firing pins housed in a standing breech of the receiver.

A further object of the invention is the provision of a pistol of a very versatile variety including ready interchange of various caliber barrels plus adaptability to both rim-fire and center-fire cartridges.

A still further object of the invention is the provision of a pistol having a long barrel without the gun itself being excessively long.

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Another object of the invention is to provide a single-shot pistol where gas losses are maintained at a minimum.

With these and other objects in view, as will be apparent to those skilled in the art, the invention resides in the combination of parts set forth in the specification and covered by the claims appended hereto.

SUMMARY OF THE INVENTION

In general, the invention relates to a pistol having a receiver, having a barrel pivotally connected to the receiver for movement on occasion from closed to open position, having a handle fastened to the receiver, and having a trigger guard pivotally attached to the receiver with a horn extending toward the handle in position to be pulled upwardly by a hand grasping the handle. Means are provided operative, when the horn is pulled upwardly, to allow the barrel to pivot relative to the receiver from closed to open position. In addition, the pistol is provided with a hammer mounted on the receiver with releasable means locking the barrel in the first position and a safety operative when the said means is released to prevent the hammer from touching a cartridge until the hammer is subsequently cocked. Furthermore, the pistol is provided with a trigger mechanism mounted in the receiver and means are provided assuring that the hammer can be cocked and the trigger mechanism can be locked separately.

BRIEF DESCRIPTION OF THE DRAWINGS

The character of the invention, however, may be best understood by reference to one of its structural forms, as illustrated by the accompanying drawings, in which:

FIG. 1 is a side elevational view of a pistol embodying the principles of the present invention,

FIG. 2 is a plan view of the pistol slightly angled to show part of the front side,

FIG. 3 is an end elevational view of the pistol with the barrel slightly raised to show the relationship of the parts,

FIG. 4 is an exploded view showing the components of the pistol, and

FIGS. 5, 6, and 7 show various conditions of the elements of the pistol during a cycle of operation.

Referring first to FIGS. 1, 2, and 3, which best show the general features of the invention, it can be seen that the pistol, indicated generally by the reference numeral 1, comprises a receiver 10 to which is attached a barrel assembly 70. To the back end of the receiver is attached a handle or grip 45. Forwardly of the handle is located the trigger guard 2 within which resides the trigger 3. Forwardly of the receiver and underlying the barrel assembly is a forend. The barrel is provided with a front sight 5 at its outer end and, at the inner end overlying the receiver, it is provided with a rear sight housing 6. As is evident in the drawings, the barrel is of tapered octagonal cross-section. The grip 45 is hand fitted with a thumb pad for use in accurate shooting.

Referring to FIG. 4, it can be seen that the barrel assembly 70 is provided with a cartridge chamber 11 underlying which is a slot 30 in which is slidably mounted an extractor 12. Mounted on the top rear of the barrel assembly is the rear sight housing 6 in which is mounted the rear sight blade 7. The housing is fastened on the top of the barrel assembly by means of rear sight screws 41 and a windage-adjusting screw 39 extends laterally through the housing and is locked in place by a snap spring 54. An elevation adjusting screw 40 is mounted in the rear sight blade 7 and the rear sight is maintained in its upper position by means of an elevating spring 33. The forend 44 is made in two parts which lie on either side of the receiver 10 and their upper edges are fastened to the forend catch 57 which is screwed in place by means of cap

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screws 43. Extending out of the forend catch 57 is a forend lug 9 and a dove-tail lock 60. Finally, a forend catch plunger 55 is located in the catch 57 and is provided with a spring 63, while a pin 61 extends transversely through the catch.

Located in a suitable bore in the receiver 10 is a cylindrical firing pin bushing carrying the two pins 15 and 15A, the pin 15 being a rim-fire firing pin and the pin 15A being a center-fire firing pin. The pins are provided with suitable springs 26. A stop pin 69 is associated in the barrel assembly with the extractor 12 and a hinge pin 18 locks the barrel assembly 70 in the receiver 10 and allows for hinged or swinging action relative thereto. Above and to the right of the receiver 10 is shown the hammer which is hingedly located in a recess in the receiver and locked in place by a pin 59. Associated with the hammer 4 is a hammer nose 50 which is provided with a spring 51 and with hammer nose detents 52. A wire spring 24 biases the hammer 4 toward a forward position. The bolt 13 is formed to slide in a suitable transverse slot 21 formed in the barrel assembly and is provided with a spring 65 which biases it outwardly toward engagement with a lip on the receiver. A roller 58 lies in a suitable groove on the underside of the bolt 13 to withdraw the bolt from engagement with the receiver to permit opening of the breech; that is to say, swinging of the barrel assembly 70 about the pin 18 as a hinge point. A bushing screw 16 is provided to hold the firing pin bushing in place in the receiver 10. The right-hand or rear side of the receiver 10 is provided with a threaded peg to which the grip 45 is attached. The two are locked in place by use of a long bolt 35 and its washer 34. Finally, at the lower end of the grip, it is provided with a suitable grip cap 47 held in place by screws 42. The trigger guard 2 is held in the receiver and is provided in its upper portion with two ears 31 adapted on engagement to engage the enlarged ends of the roller 58. At the same time, the trigger guard is provided with a horn 32 which extends backwardly toward the grip 45 in position to be engaged by the shooter's finger. The trigger guard is pivotally held in place within the receiver by the guard pin 19 and, at the other end, it is forked and slidable on a guard stop screw 38. It is biased downwardly by a spring 29. The trigger 3 is pivotally attached to the trigger guard by means of the trigger pin 22 and engages a bar 17 which is pivotally attached to the trigger guard by means of the bar pin 23 and biased upwardly by a spring 28. A trigger return plunger 68 is associated with the trigger guard and is spring-biased by means of a spring 27. Pivotally mounted in the receiver 10 is a sear 46 having a finger 46A, the pin 20 serving to hinge the sear in its central portion and a sear spring 25 operating to hold it in biased condition while a plunger 56 assists in this operation. A safety 8 is slidably mounted in the receiver and is biased upwardly by a safety spring 64. The rearward face of the safety 8 is provided with a recess 37 adapted to be engaged by an abutment 48 on the front face of the hammer 4.

FIG. 5 shows the condition of the pistol 1 when the breech is open, the barrel assembly 70 having been pivoted about the pin 18. A cartridge 49 has been inserted in the chamber 11. It will be noted that the bolt 13 is in the outward position under the influence of the spring 65. It is, of course, out of engagement with the latch recess 62 associated with the receiver 10. The ears 31 associated with the trigger guard 2 are not in engagement with the roller 58.

FIG. 6 shows what happens when the user pulls upwardly on the horn 32 associated with the trigger guard. Pivoting of the trigger guard about the pin 19 causes the ears 31 to strike the enlarged ends of the roller 58. This carries the bolt 13 rearwardly against the spring pressure of the spring 65 and releases the outer end of the bolt from the latch recess 62 of the receiver. On the other hand, when one rotates the barrel assembly 70 about the

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pivot 18 to close the breech, the trigger guard 2 is forced downwardly by the spring 29 so that the ears 31, although they reside near the roller 58, engage it with a portion of its cam surface. This does not withdraw the bolt 13 from the latching recess 62, so that the gun can be locked together. When this is done, the spring 25 pushes its plunger 56 downwardly so that the bar 17 is pressed downwardly toward a position where its sharp forward edge engages a ridge 66 extending rearwardly of the trigger 3. This allows the sear spring to push the sear back into a position where it can engage a notch on the hammer 4 and hold the hammer in cocked position. The hammer in FIG. 6 is in the uncocked position, however, which means that the safety 8 holds the hammer away from the firing pin bushing 14. In other words, the safety is in an upper position despite the attempt of the spring 64 to push it downwardly.

Referring to FIG. 7, the condition of the gun is shown with the trigger 3 locked against the bar 17 with the ears 31 well away from the roller 58 so that the breech is definitely locked; then, with the safety 8 released from the hammer 4, the hammer is now ready to be cocked. The hammer, however, is resting against the firing pin bushing 14 and the sear 46 is simply in a neutral condition. In order to prepare the gun for firing, it is necessary to cock the hammer 4 so that it makes engagement with the rear ridge on the sear 46. The spur or finger 46A on the sear keeps the safety in the safe position until the trigger is pulled. Consequently, if the thumb slips off the hammer in cocking, the pistol will not fire.

The operation of the pistol will now be readily understood in view of the above description. The description will assume that the shooter is holding the pistol in his right hand.

LOADING

(A) Holding the gun in a natural position, pull up on the horn 32 of the trigger guard 2 until it comes to a definite stop. This unlocks the bolt 13 from the latching recess 62 in the receiver and allows the barrel to swing open about the pin 18. This exposes the chamber 11. A quick, positive pull is better than a steady pull for quick and easy release of the locking mechanism. This manual operation by the user simultaneously performs many other important functions:

First, it swings open the barrel which activates the extractor 12 and starts the shell from the chamber 11 for easy manual extraction.

Secondly, it slides the safety 8 between the hammer 4 and the receiver 10, thus preventing any possible accidental firing of the gun while the safety is engaged.

Thirdly, it engages the bar 17 and the trigger 3 preparatory to firing. It is important to remember that a complete travel of the trigger guard 2 by pulling upwardly on the horn to a definite stop is necessary after each fall of the hammer regardless of whether or not the gun has been fired. This is because this action performs the other functions mentioned above. If this complete manual operation is not performed, the trigger and the bar 17 will not engage and it would be impossible to cock the hammer for firing.

(B) After placing a cartridge in the chamber 11, the barrel assembly 70 is swung upwardly which closes the barrel and locks the bolt 13 against the latching recess 62 in the receiver.

FIRING

(A) At this point, the hammer is down and needs only to be drawn backwardly until engaged with the sear 46 to cock the hammer for firing.

(B) After cocking the hammer, if the shooter decides not to fire, the following procedure can be practiced. With his thumb on the hammer 4, he pulls the trigger and steadily eases the hammer down with the thumb until it comes to a positive stop. It is important to keep the muzzle pointed in a safe direction at all times. Now,

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in order to fire the gun, the complete travel of the trigger guard in the upward motion is necessary to engage the bar 17 and the trigger to prepare the gun for firing.

(C) The grip 45 which, in the preferred embodiment, is made of maple and is hand-checked, gives full support to the hand when firing the gun. The hand should be wrapped comfortably around the grip except for the index finger which is used to pull the trigger. It is important that, at no time, should the user have his fingers around the trigger guard or have the trigger guard resting on anything when firing.

SAFETY

As has been explained above, the safety 8 is engaged on the upward stroke of the trigger guard upon the pulling on the horn 32. Just as soon as the hammer is started or pulled toward the rear, the safety 8 slides out of position and the gun is ready for firing.

CHANGING BARRELS

The present pistol is adapted for use with a number of barrels of different caliber. With the gun in its closed position, the forend grip 44 is snapped off by a downward pull. This reveals the hinge pin 18. The gun is then opened by pulling upwardly on the horn 32 of the trigger guard. This relieves pressure against the pin and the pin is manually pushed out from either direction. The barrel assembly 70 is then free to be removed from the receiver frame. To replace the barrel, the process is reversed.

POSITION OF HAMMER NOSE

The present pistol is capable of accommodating either rim-fire or center-fire cartridges. The two firing pins 15 and 15A, one above the other, are used and associated with the bushing 14. In the face of the hammer is the slotted offset hammer nose 50 which can be rotated so that it will hit either the top firing pin or the lower one. Detents 52 lock the hammer nose 50 in either of the selected positions.

TRIGGER ADJUSTMENT

The trigger may be adjusted for let-off travel by the use of a screw in the top of the trigger guard. This is the screw 36 shown in FIG. 4 and located in the trigger guard 2. It is important to remember that too light a trigger pull may cause premature firing.

SIGHT ADJUSTMENT

(A) It is necessary at times to adjust the rear sight blade 7 to compensate for variations in individual holding or eyesight. In order to do this, all adjustments for windage and elevation must be made at the rear sight, since the front sight 5 is fixed. Adjustment is made by moving the rear sight in the direction in which the user wishes the group on the target to move. If the group must be higher, one elevates the rear sight; if the group must go to the right, the rear sight must be moved to the right, and so forth. Now, to elevate the rear sight, one turns the top screw 40 left counter-clockwise; to drop the rear sight, one turns the top screw 40 to the right clockwise. To move the rear sight to the right, one turns the windage screw 39 to the left counter-clockwise; and to move the rear sight to the left, one turns the sight side screw 39 to the right, that is to say, clockwise.

The action of the safety 8 can best be described by observing FIG. 6. When the user pulls up on the horn 32, a portion of the trigger guard 2 engages the bottom of the safety 8 which is normally pushed downwardly by its spring 64. Now, the upward movement of the safety 8, eventually, causes the engagement of the abutment 48 on the front of the hammer with the recess 37 on the rear surface of the safety 8. The safety stays up in that position and holds the hammer 4 away from the firing pins until the hammer 4 is cocked, and then the spring 64 acts to push the safety back down again, so

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that it is out of the way of the forward action of the hammer.

It is also interesting to note that the upper movement of the trigger guard 2, by pulling on the horn 32, causes the trigger 3 to engage the forward edge of the bar 17. This locks the trigger. When the trigger is pulled, of course, the bar is released and its spring throws it upwardly, so it contacts the front portion of the sear 46 which causes the sear to rock and to disengage the hammer 4, so that the hammer is able to rotate forwardly under the impetus of its spring 24.

It can be seen, then, that the present apparatus provides a pistol which includes a single manual motion for lifting the hinge trigger guard up into the receiver and, simultaneously, accomplishing (a) the unlocking of the pistol by forcing the bolt into a barrel lug, (b) the setting of the trigger, and (c) the engaging of the safety in its safe position with the hammer and keeping it so engaged until the hammer is cocked and the safety is able to return automatically to the "off" position. The present pistol is provided with a spring-loaded extractor which permits the use of rimless cartridges in a break-open type action. It has a hammer nose which rotates and locks in position upon manual selection permitting the selective striking of either of two separate firing pins housed in the standing breech of the receiver. The pistol includes a unique safety device which automatically separates the hammer nose from the firing pins and locks the hammer in a safe position upon breaking the action for loading or unloading, and this safety remains in the "on" position until the hammer is cocked and then returns automatically to the "off" position. Furthermore, in the event the hinge trigger guard is activated inadvertently when the hammer is cocked for firing, the safety will automatically move upwardly to the safe position, thereby preventing any possible accidental discharge of the firearm.

It is obvious that minor changes may be made in the form and construction of the invention without departing from the material spirit thereof. It is not, however, desired to confine the invention to the exact form herein shown and described, but it is desired to include all such as properly come within the scope claimed.

The invention having been thus described, what is claimed as new and desired to secure by Letters Patent is:

1. A pistol, comprising

(a) a receiver,

(b) a barrel assembly pivotally connected to the receiver for movement on occasion from closed to open position,

(c) a handle fastened to the receiver,

(d) a trigger guard pivotally attached to the receiver and having a horn extending toward the handle in position to be pulled upwardly by a hand grasping the handle, and

(e) means operative when the horn is pulled upwardly to allow the barrel to pivot relative to the receiver from closed to open position.

2. A pistol as recited in claim 1, wherein the said means includes an ear which extends from the trigger guard into the receiver and engages on occasion a roller which is mounted in the barrel assembly and which is connected to a spring-loaded bolt which normally engages a latch recess in the receiver and prevents pivotal movement of the barrel assembly relative to the receiver.

3. A pistol as recited in claim 1, wherein the trigger guard is pivotally attached at its forward portion to the receiver and slidable at its rearward portion on a stop bolt and wherein a coil spring on the bolt maintains the guard outwardly of the receiver.

4. A pistol, comprising

(a) a receiver,

(b) a barrel pivotally mounted on the receiver for

movement on occasion from closed to open position,
 (c) a hammer mounted on the receiver,
 (d) releasable means locking the barrel in the first
 position, and
 (e) a safety operative when the said means is released
 to prevent the hammer from firing a cartridge until
 the hammer is subsequently cocked.

5. A pistol as recited in claim 4, wherein the safety
 consists of a vertically-slidable plate having a recess on
 its rear surface adapted to engage an abutment on the
 front face of the hammer, wherein a spring normally
 maintains the plate in a lower position, and wherein when
 the barrel is released the plate is pushed upwardly to
 permit the abutment and recess to engage and hold the
 plate in an upper position.

6. A pistol as recited in claim 5, wherein the cocking of
 the hammer withdraws the abutment from the recess and
 allows the plate to drop into its lower position.

7. A pistol, comprising

- (a) a receiver,
- (b) a barrel pivotally mounted on the receiver for
 movement on occasion from closed to open position,
- (c) a hammer mounted on the receiver,
- (d) a trigger mechanism mounted in the receiver, and
- (e) means assuring that the hammer be cocked and
 the trigger mechanism be locked separately.

8. A pistol as recited in claim 7, wherein the trigger
 mechanism includes a pivoted trigger having a lip which
 engages one end of a pivoted bar, wherein the bar is
 spring-biased to rotate upon actuation of the trigger and
 to strike a pivoted sear and to release the hammer, and
 wherein the cocking of the hammer by engagement with
 the sear is entirely independent of the locking of the
 trigger by engagement with the bar.

9. A pistol, comprising

- (a) a receiver,
- (b) a barrel pivotally connected to the receiver for
 movement on occasion from closed to open position,
- (c) a handle fastened to the receiver,
- (d) a hammer mounted on the receiver,
- (e) a trigger mechanism mounted in the receiver,
- (f) a trigger guard pivotally attached to the receiver
 and having a horn extending toward the handle in
 position to be pulled upwardly by a hand grasping
 the handle,
- (g) means operative when the horn is pulled upwardly
 to allow the barrel to pivot relative to the receiver
 from closed to open position.
- (h) releasable means locking the barrel in the first
 position,
- (i) a safety operative when the said means is released
 to prevent the hammer from touching a cartridge
 until the hammer is subsequently cocked, and
- (j) means assuring that the hammer be cocked and the
 trigger mechanism be locked separately.

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