

W. H. WHITTIER.
AUTOMATIC FIREARM.

APPLICATION FILED FEB. 23, 1912.

Patented Aug. 6, 1912.

4 SHEETS—SHEET 1.

1,034,750.

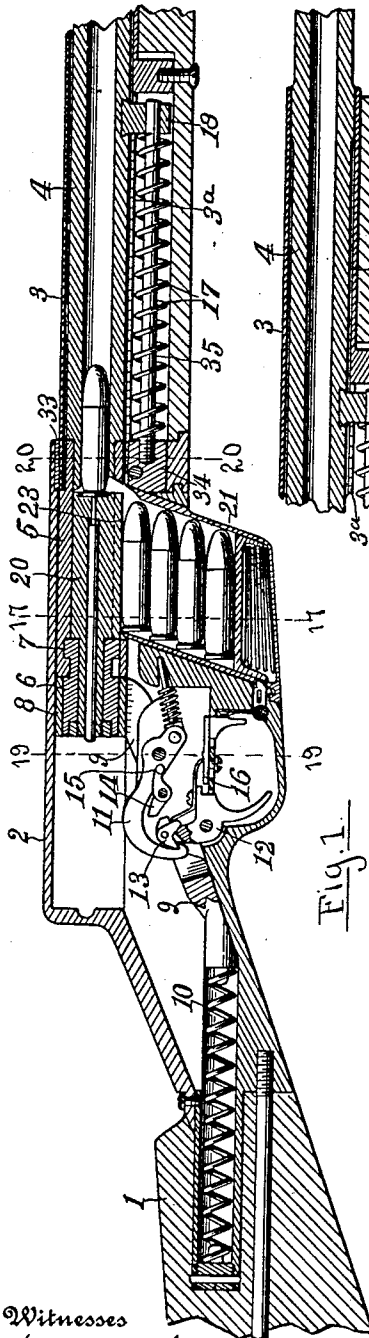


Fig. 1.

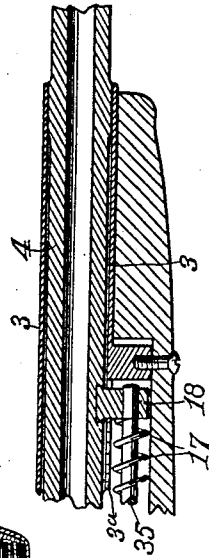


Fig. 2.

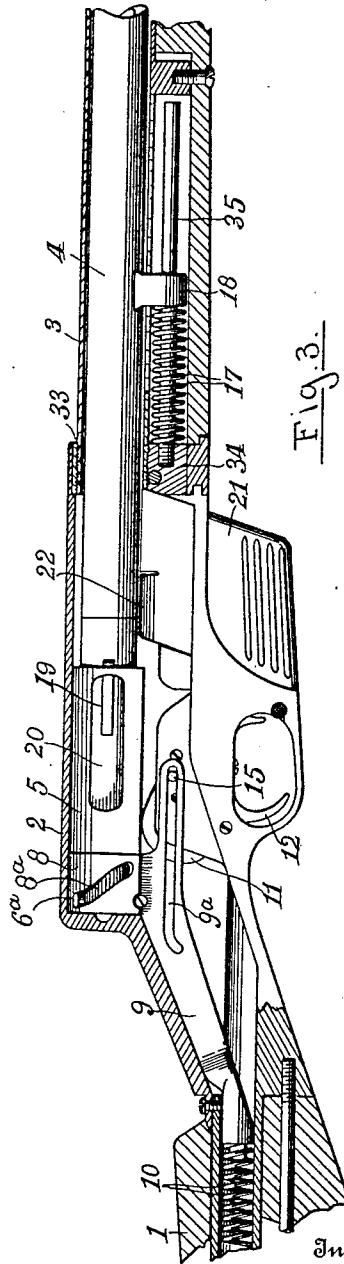


Fig. 3.

Witnesses

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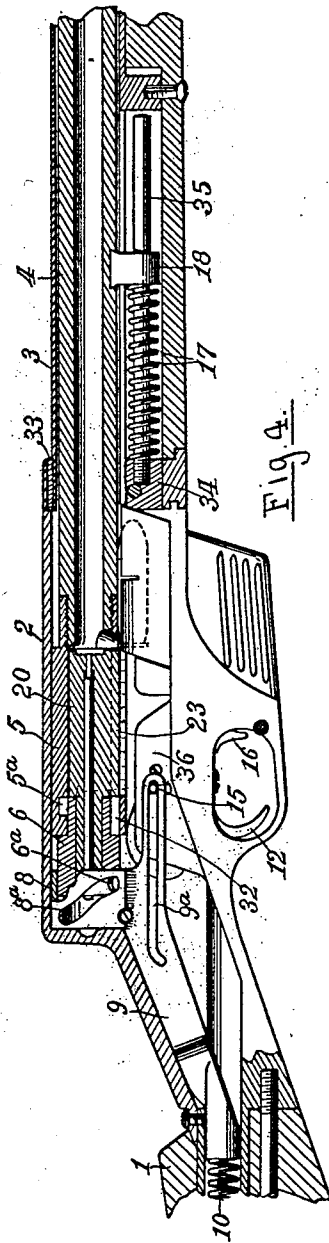


Fig. 4.

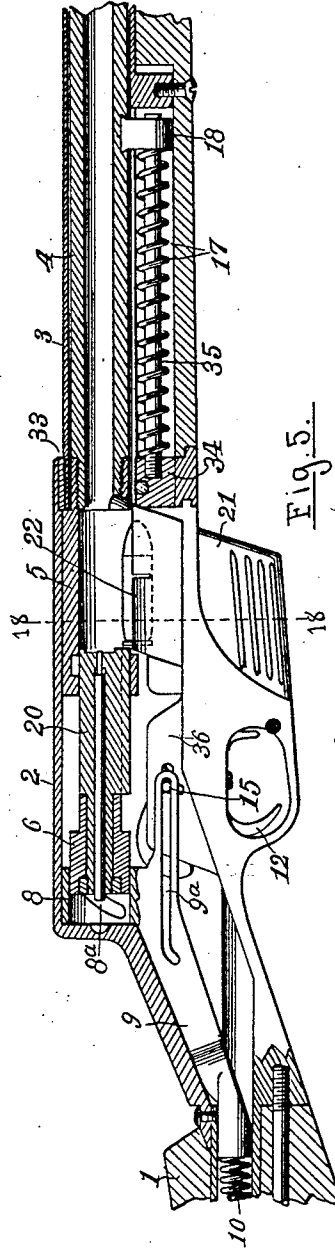


Fig. 5.

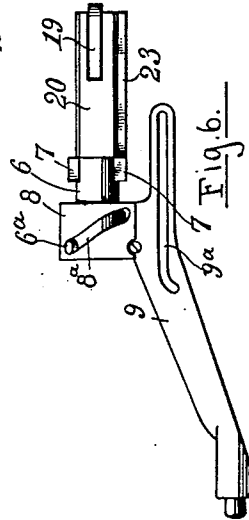


Fig. 6.

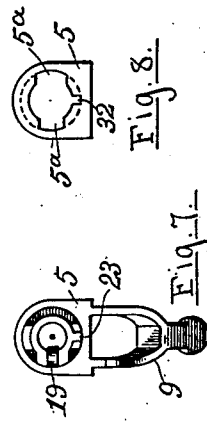


Fig. 7.

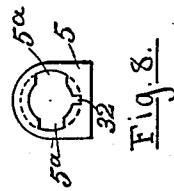


Fig. 8.

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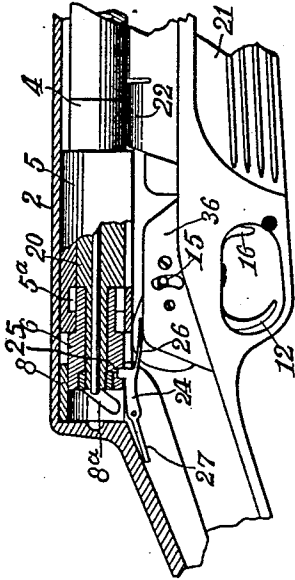


Fig. 9.

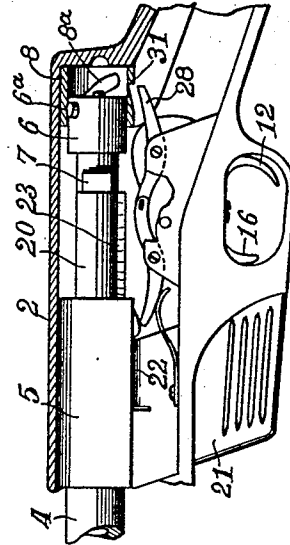


Fig. 10.

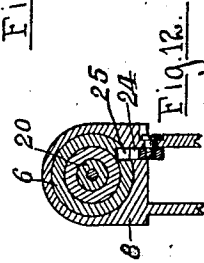


Fig. 11.

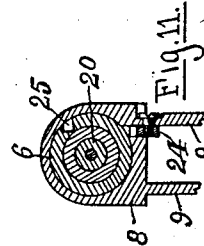


Fig. 12.

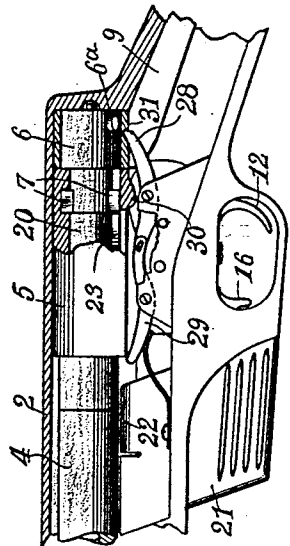


Fig. 13.

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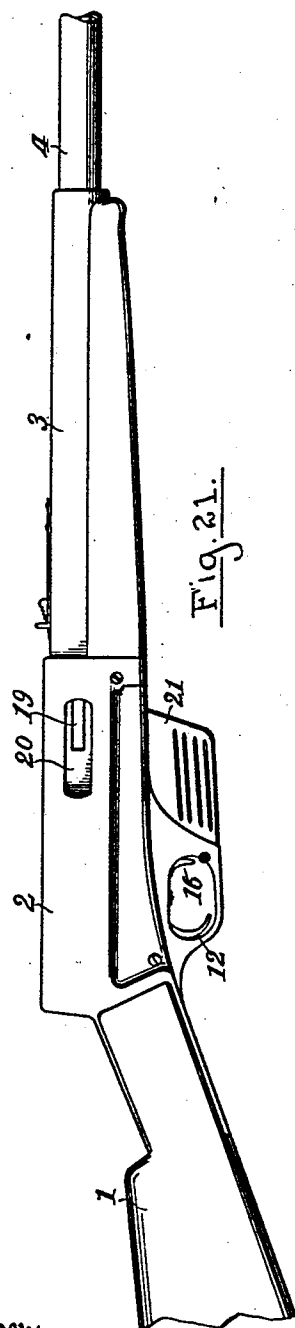


Fig. 21.

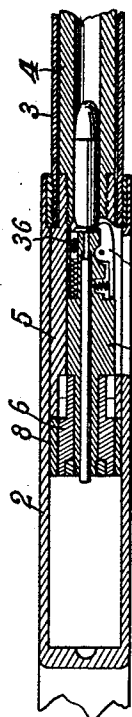


Fig. 15.

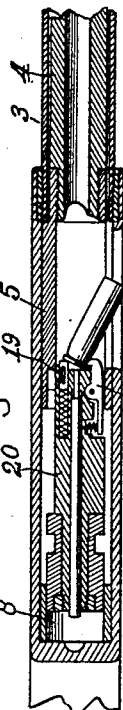


Fig. 16.

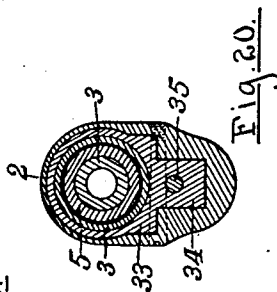


Fig. 20.

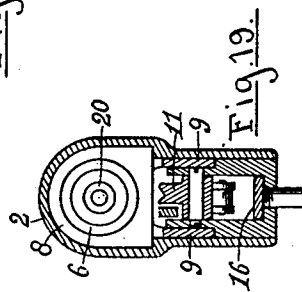


Fig. 19.

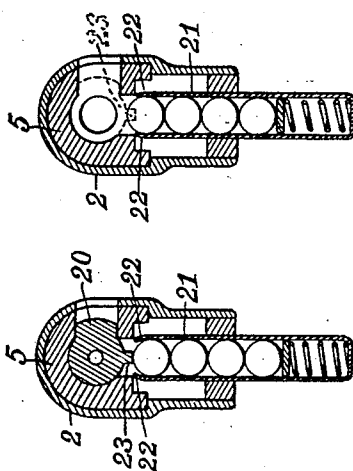


Fig. 18.

Fig. 17.

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UNITED STATES PATENT OFFICE.

WALTER H. WHITTIER, OF GRAND RAPIDS, MICHIGAN.

AUTOMATIC FIREARM.

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Specification of Letters Patent.

Patented Aug. 6, 1912.

Application filed February 23, 1912. Serial No. 679,402.

To all whom it may concern:

Be it known that I, WALTER H. WHITTIER, a citizen of the United States of America, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Automatic Firearms; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in automatic firearms and its object is to provide the same with various new and useful features hereinafter more fully described and particularly pointed out in the claims, reference being had to the accompanying drawings, in which:

Figure 1 is a longitudinal vertical section of a gun with portions of the stock and barrel omitted, embodying my invention; Fig. 2 a further portion of the same at the right of Fig. 1; Fig. 3 is a detail in side elevation with portions removed to show the construction; Fig. 4 a detail partially in elevation and partially in longitudinal vertical section showing the moving parts in the position to which they are moved by the recoil; Fig. 5 the same with the moving parts in position first taken at the commencement of the return movement; Fig. 6 a detail in elevation of the breech bolt extension and parts co-acting therewith; Fig. 7 a front elevation of the same; Fig. 8 an end view of the barrel extension; Fig. 9 a detail showing the bolt hook released; Fig. 10 showing the same engaged with the bolt; Fig. 11 a transverse section on the line 11—11 of Fig. 9; Fig. 12 the same in the position of Fig. 10; Fig. 13 a detail showing the means for holding the bolt carrier to unlock the bolt from the barrel extension; Fig. 14 the same released; Fig. 15 a horizontal section through the barrel extension and parts co-acting therewith in closed position ready for firing; Fig. 16 the same at the limit of the rearward movement and ejecting the shell; Fig. 17 a transverse section on the line 17—17 of Fig. 1; Fig. 18 a transverse section on the line 18—18 of Fig. 5; Fig. 19 the same on the line 19—19 of Fig. 1; Fig. 20 the same on the line 20—20 of Fig. 1; and Fig. 21 a side elevation of a gun embodying my device with a portion each of the stock and barrel broken away.

Like numbers refer to like parts in all of the figures.

1 represents the stock; 2 the receiver; 3 the barrel jacket; 4 the barrel as usually constructed; 5 is a barrel extension secured to the breech of the barrel and in line therewith; 6 is a breech bolt rotative on the rear end of a forward extension 20 of the same, which extension is longitudinally movable and non-rotative in the barrel extension 5 and carries a firing pin in its axis. This breech bolt is provided with lugs 7 upon the reduced forward end which end is adapted to enter an opening in the rear of the barrel extension and interlock therewith forming a bayonet lock therebetween to detachably connect the breech bolt and barrel extension. To rotate this bolt and lock it to the barrel extension or unlock it therefrom, a bolt carrier 8 is provided in the form of a ring or band surrounding the rear end of the bolt. This carrier is provided with a spiral slot 8^a traversed by a pin 6^a projecting from the side of the bolt. The bolt is both longitudinally movable and rotative in this carrier and when moved rearward within the carrier the pin turns the bolt to a position to lock it in the barrel extension and when the bolt is moved forward in the carrier the pin and slot rotate the bolt to unlock the same from the barrel extension.

9 is a rearward extension attached to the bolt carrier moved forward by a spring 10. This extension is also provided with a slot 9^a extending in the direction of the movement throughout the major portion and curved downward at its rear end, said slot being traversed by a pin 15 on the stop 14 to hold the same in engagement with the inner end of the trigger to lock the same and prevent releasing the hammer except when the parts are in closed position and the gun ready to fire, in which position the slot is moved forward to bring the pin into the depressed end of the slot and thus raise the stop 14 out of the path of the trigger whereby the latter may be operated to fire the gun.

11 is the hammer automatically cocked by the rearward movement of the carrier which engages therewith, said hammer being provided with a hook on its movable end engaged by a spring actuated dog or sear 13 on the end of the trigger.

16 is a trigger lock slidable into and out of engagement with a shoulder on the trigger.

ger to lock the same and prevent firing the gun accidentally.

17 is a spring mounted on a rod 35 fixed in the jacket head 34 which head is engaged by one end of the spring the other end of the spring engaging a lug fixed in the barrel and traversing the rod and a slot 3^a in the jacket as the barrel moves to and fro.

19 is the shell extractor mounted in the forward extension breech bolt extension 20.

21 is the magazine to contain the cartridges having the usual spring for moving the same upward into the barrel extension. This extension has a slot 32 in the bottom (see Fig. 8) in which is a rib 23 carried by the breech bolt extension to prevent rotation of the same and to engage the upper cartridge and move the same into the barrel as the breech bolt moves forward. This magazine is preferably slotted vertically at each side of the opening through which the cartridges are discharged upward and the rear portion at the sides of this opening sprung inward slightly as at 22 to prevent the cartridges from freely escaping therefrom until forced out by the rib 23.

24 is a bolt lock preferably consisting of a pivoted latch adapted to engage a recess 25 in the breech bolt to prevent the same from rotating in the carrier. To operate this bolt lock the same is forwardly extended to form a spring arm 26 to hold the latch in engagement with the recess when the bolt is in forward position in the carrier and an oppositely extended arm 27 to release the latch from the recess when the carrier moves forward to relock the bolt to the barrel. These arms 26 and 27 traverse an abutment 36 on the finger plate and alternately engage the same to alternately engage and disengage the latch.

28 is a pawl adapted to engage a recess 31 in the bolt carrier and hold the same in rearward position until the barrel extension 5 has moved to forward position and brings the projection 30 thereon in contact with the releasing lever 29 which depresses said lever and disengages the pawl from the recess.

32 is a groove in the barrel extension to receive the rib 23 when the bolt extension moves rearward in the barrel extension.

33 is a band forming a portion of the jacket head and extending between the receiver and the jacket.

The operation of my device is as follows:—After the gun has been fired the parts automatically return to forward position shown in Figs. 1, 9 and 15 and the gun is automatically reloaded and ready for firing again. If the gun is not to be immediately fired the safety stop 16 is used to lock the trigger to avoid accidental firing. When the gun is fired the recoil moves the barrel rearward carrying the parts to the

position shown in Figs. 3 and 13 the pin 6^a remaining in the rear end of the slot 8^a of the bolt carrier. The pawl 28 now holds the carrier in rearward position together with the extension 9 and with the spring 10 under compression; as the bolt moves forward the pin traverses the slot thus rotating the bolt and unlocking it from the barrel extension. The barrel and its extension are now free to move to the position shown in Figs. 10 and 14. The latch 24 is now engaged with the recess 25 in the bolt and holds the same from turning in the carrier until the barrel and extension complete the forward movement withdrawing the bolt extension from the barrel extension permitting the upper cartridge to rise partially into the latter as in Fig. 5. This barrel and its extension now having completed the forward movement as in Fig. 14 releases the pawl 28, the bolt and carrier are now driven forward by the spring 10, held in fixed relation by the latch 24, carrying the cartridge into the barrel. As soon as the lugs 7 have entered the barrel extension the latch 24 is removed from the recess 25 permitting the carrier to move forward on the bolt, thus relocking the bolt to the barrel extension by the forward movement of the carrier thereon.

What I claim is:—

1. An automatic gun, comprising a reciprocable barrel extension, a breech bolt, a bayonet lock to connect the bolt and extension, a reciprocable carrier in which the breech bolt is both rotative and longitudinally movable, means for rotating the breech bolt when the same moves longitudinally within the carrier to engage and disengage the bayonet lock, a latch on the carrier to engage and hold the breech bolt when the same is in unlocking position in the carrier, and means for disengaging the latch when the breech and carrier are in forward position.

2. An automatic gun, comprising a reciprocable barrel and barrel extension, a non-rotative breech bolt extension reciprocable in the barrel extension, a breech bolt rotative on the breech bolt extension, a bayonet lock to connect the breech bolt and barrel extension, a reciprocable carrier in which the breech bolt is both rotative and longitudinally movable, a spiral slot in the carrier, a pin in the breech bolt engaging and traversing the said slot, a latch on the carrier engaging the breech bolt to hold the same from rotating, a pawl to engage and hold the carrier in rearward position, and released by forward movement of the barrel extension, and means for engaging and disengaging the latch, operated by the movement of the carrier.

3. An automatic gun, comprising a reciprocable barrel extension, a breech bolt at the rear of said extension, a forward extension

to the breech bolt reciprocable in the barrel extension, a bayonet lock to connect the breech bolt and barrel extension, a reciprocable carrier in which the breech bolt is both
 5 rotative and longitudinally movable, means for rotating the breech bolt to engage and disengage the bayonet lock, a latch pivoted on the carrier and engaging the breech bolt to prevent rotation thereof, oppositely projecting arms on the latch, and an abutment
 10 alternately engaged by the arms to engage and disengage the latch.

4. An automatic gun, comprising a reciprocable barrel, a barrel extension fixed to the breech of the barrel, a breech bolt extension slidable in the barrel extension, a
 15 breech bolt rotative on the bolt extension, a bayonet lock to connect the bolt and barrel extension, a carrier in which the rear of the bolt is rotative and longitudinally movable,
 20 a lock to hold the bolt from rotating in the carrier, means for engaging and disengaging the said lock, a latch to engage and hold the carrier and means for disengaging the
 25 latch operated by the forward movement of the barrel extension.

5. An automatic gun, comprising a reciprocable barrel, a barrel extension having a bottom opening to receive cartridges, a
 30 breech bolt extension reciprocable in the barrel extension and having a rib traversing said opening, a breech bolt rotative on the bolt extension, a bayonet lock to connect the bolt and barrel extension, a carrier in

which the rear of the bolt is rotative and
 35 longitudinally movable, a lock pivoted on the carrier and engaging a recess in the bolt to hold the same in position to reengage the bayonet lock, spring arms on the lock
 40 to engage and disengage the same, an abutment traversed by the arms to operate the lock, a latch to engage and hold the carrier in rearward position and means for disengaging the latch when the barrel extension is in forward position.

6. An automatic gun, comprising a reciprocable barrel, a barrel extension, a breech bolt having an extension slidable in the
 45 breech extension, locking means to connect the bolt and barrel extension, a carrier in
 50 which the bolt is longitudinally movable means for releasing the said locking means when the bolt moves out of the carrier and for engaging said means when the bolt moves into the carrier, a bolt lock on the
 55 carrier to hold the bolt and carrier in fixed relation when the bolt is withdrawn from the barrel extension and means for releasing the lock when the bolt is inserted in the barrel extension and springs for restoring
 60 the parts to forward position.

In testimony whereof I affix my signature in presence of two witnesses.

WALTER H. WHITTIER.

Witnesses:

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