July 20, 1937. R. J. RICKENBACHER 2,087,450

REPEATING PISTOL

Filed Jan. 4, 1934 2 Sheets-Sheet 1

Fig. 1.

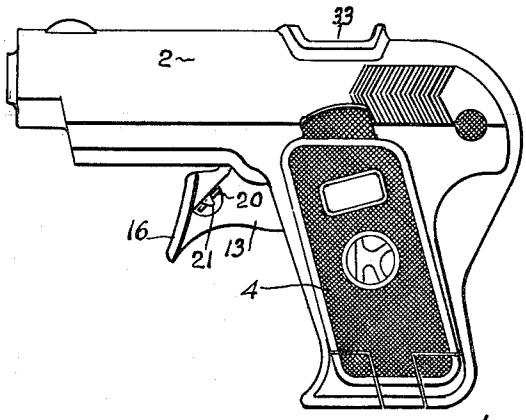


Fig. 2.

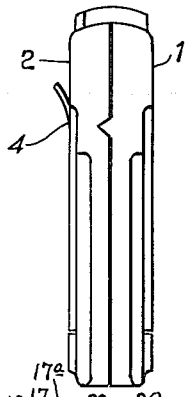


Fig. 3.

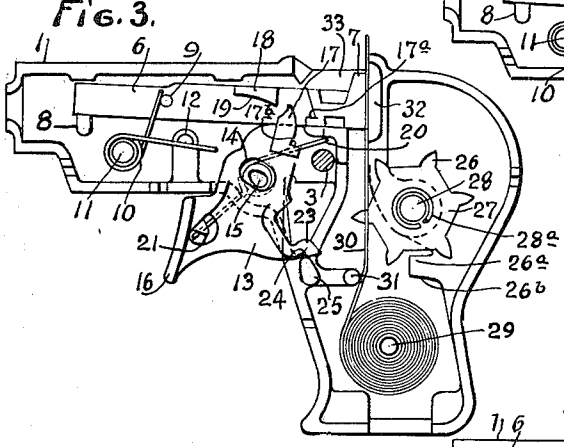


Fig. 5.

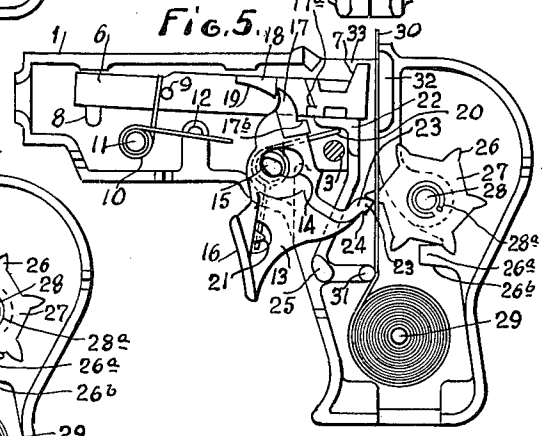


Fig. 4.

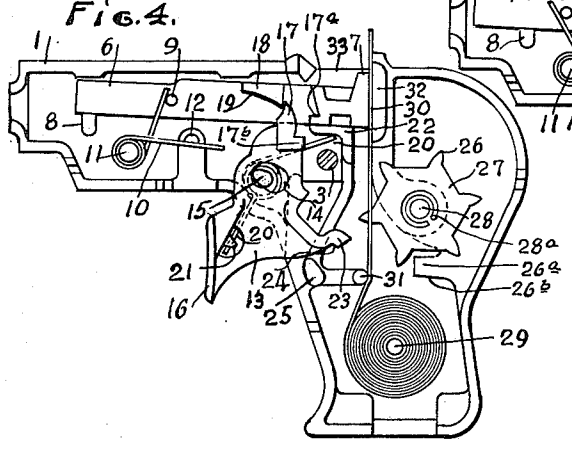
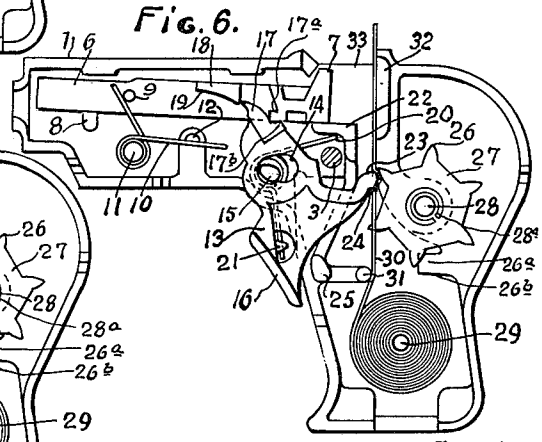


Fig. 6.



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REPEATING PISTOL

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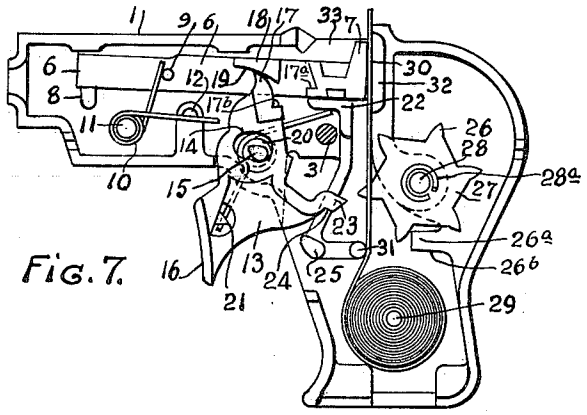


Fig. 7.

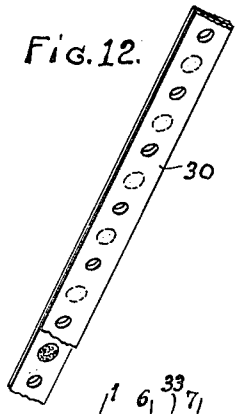


Fig. 12.

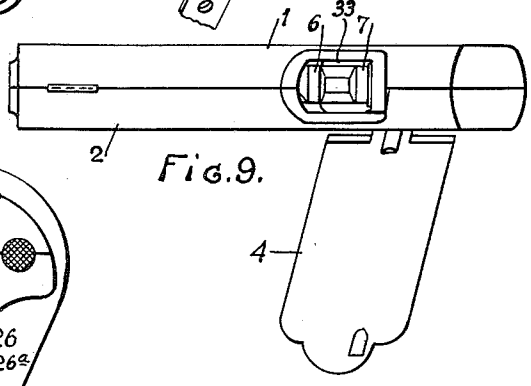


Fig. 9.

Fig. 8.

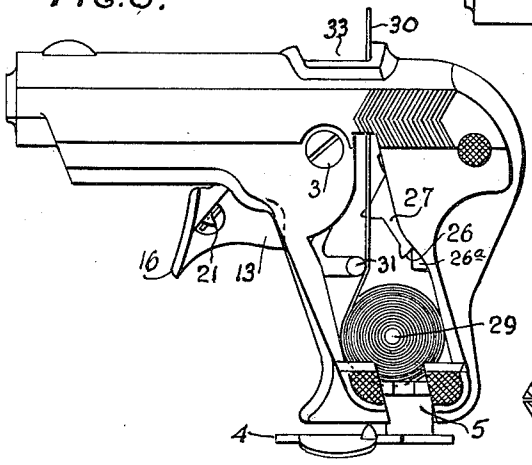
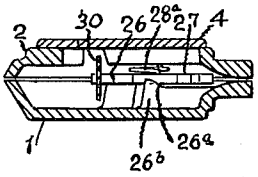


Fig. 13.



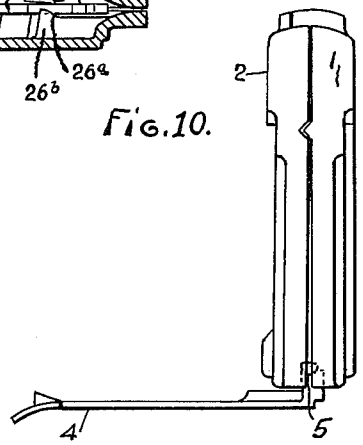
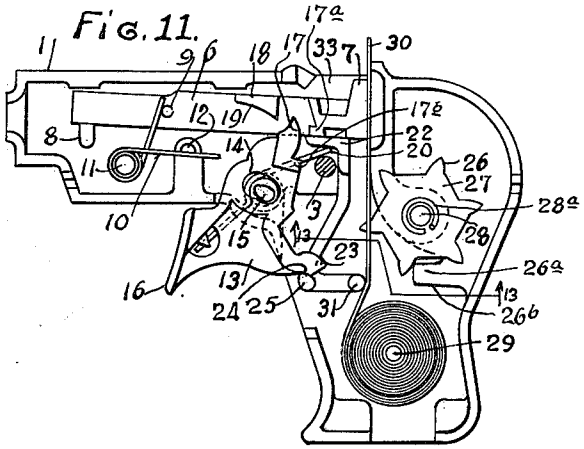


Fig. 10.

Fig. 11.



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UNITED STATES PATENT OFFICE

2,087,450

REPEATING PISTOL

Robert J. Rickenbacher, Grove City, Ohio, assignor to The Kilgore Mfg. Company, Westerville, Ohio, a corporation of Ohio

Application January 4, 1934, Serial No. 705,245

10 Claims. (Cl. 42—57)

This invention relates to improvements in pistols, and has for its object to provide, in connection with an anvil and means for feeding a strip of ammunition across the anvil, a hammer adapted to engage the ammunition on the anvil, and means for operating the hammer and the ammunition feeding means so that the hammer is first removed from the ammunition strip and then the ammunition feeding means is moved while the movement of the hammer is continued.

It is also an object of this invention to provide, in connection with a pistol having ammunition feeding means, means for firing the ammunition, and means for operating the firing means and the feeding means simultaneously with the exception that the operation of the firing means begins slightly before the operation of the feeding means.

It is also an object of this invention to provide, in connection with a pistol having an anvil, means to feed ammunition across the anvil, a hammer for firing the ammunition, a loosely mounted trigger that in its operation withdraws the hammer from the anvil and releases it for firing the ammunition on the anvil, and during the latter part of this movement feeds the ammunition across the anvil, together with means acting upon the trigger to remove it bodily from the path of the ammunition feeding means as it moves to its original position.

These and other advantages will appear from the following description taken in connection with the drawings.

Referring to the drawings:

Figure 1 is a side elevation of a pistol.

Figure 2 is an end elevation of the butt of the pistol.

Figure 3 is a side elevational view of the operating parts of the pistol in their normal initial positions during the time the pistol is not in use.

Figure 4 is a view similar to Figure 3 but with the trigger at the end of its first period of operation, and with the hammer pawl in engagement with a lug thereon.

Figure 5 is a view similar to Fig. 3, but with the parts in the next stage of operation, in which the trigger is moved bodily backward so that the feed pawl is in position to engage the teeth of the feed ratchet.

Figure 6 is a view similar to Fig. 3, but with the parts in the positions they are in after the hammer has been withdrawn from the anvil for firing purposes and the feed ratchet rotated for feeding the ammunition, and just before the firing of the ammunition.

Figure 7 is a view similar to Figure 3, but with the parts in the positions they occupy after the hammer has been released and the pressure slightly removed from the trigger so it is advanced forwardly out of the path of the teeth of the feed ratchet.

Figure 8 is a side elevation with the door provided in the stock in an open position.

Figure 9 is a top plan view of the pistol with the door open.

Figure 10 is a rear elevation of the butt of the pistol with the door open.

Figure 11 is a view similar to Figure 3, but of a slightly modified form in which there is no cam provided for forcing the trigger upwardly to insure its engagement with the lug on the hammer.

Figure 12 is a perspective view of a portion of a strip of ammunition.

Figure 13 is a section on the line 13—13 of Figure 11.

The outside casing or body of the pistol is composed of two parts, a righthand part 1 adapted to support and carry the various operating mechanisms, and a lefthand part 2 which serves to cover the operating mechanisms and is attached to the part 1 by means of a screw 3. The part 2 has in the butt thereof an opening closed by means of a door 4, pivoted at its lower end by means of relatively flat trunnions 5 between the two parts of the pistol. By means of these relatively flat trunnions the door is held in closed position but the door may be opened due to the natural resiliency between the two parts of the casing.

In the upper part of the barrel of the pistol is a longitudinally disposed hammer 6 which has on the rear end thereof a head 7. The longitudinal part of the hammer is in the shape of a small bar and is supported with its rear or head end slightly inclined downwardly with relation to the upper surface of the barrel of the pistol. For supporting the hammer in this position there is provided one or more supporting studs 8 upon which the hammer rests. The hammer has on its lefthand side a pin 9 engaged by one end of a spring 10 coiled around a post 11 formed integral with the part 1 of the pistol. The other end of this spring engages a stop 12 suitably formed on the part 1 of the casing.

There is provided a trigger 13, which has therein an elongated hole or slot 14 adapted to receive a pivot pin 15 extending from the part 1. By means of this elongated hole and the pin therein for supporting the trigger the trigger may move bodily as well as rotatively. The trigger is provided on its lower part with the usual finger piece 16, and on its upper part with a pawl 17 adapted to engage a lug 18 formed on one side of the hammer. This lug 18 is provided with a cam surface 19 to be engaged by the pawl 17 when the trigger returns to its initial inoperative position through the action of a spring 20. The hammer has thereon a lug 17*a* adapted to be engaged by a shoulder 17*b* on the trigger to cause the trigger to release the hammer at the proper time.

This spring, intermediate its ends, is coiled around the pivot pin 15 and engaged at one end with the lug 21 on the trigger, and at its other end with a lug 22 formed on the part 1. This spring tends to hold the trigger in its forward position and the pawl 17 free from engagement with the lug 18 on the hammer. It also tends to hold the pawl 23, extending downwardly and rearwardly from the trigger into the casing, against a cam-shaped post 25. For engagement with this cam-shaped post the pawl 23 is provided with a cam surface 24 so that the trigger is held in its elevated position. When it is operated the pawl 17 will engage the lug 18, thereby causing an operation of the hammer and preventing the jamming of the ammunition.

The pawl 23 engages, during the operation of the trigger, teeth 26 on the periphery of a ratchet wheel 27 supported on a shaft 28 extending from the part 1 of the casing. Beneath the shaft 28 is a post 29 to support a roll of ammunition composed of a strip 30, which is provided with holes to receive the teeth of the ratchet wheel and extends upwardly from the roll, past a guide pin 31 and across the anvil 32 located at the rear of the hammer, where it is engaged by the head of the hammer. As the ratchet wheel rotates the teeth pass over a cam surface 26*a* (Figure 13) of a detent 26*b* on the part 1. Each tooth is adapted to engage the front edge of the detent to prevent a reverse rotation of the ratchet wheel. To assure the engagement of the teeth with the detent a spring 28*a* is located around the post 29 between the sprocket wheel and the part 2 of the pistol. The ammunition, after it passes across the anvil, leaves the casing through an opening 33 provided in the top thereof.

Figure 3 shows the moving parts idle or in normal positions. As shown in this figure, the pawl 17 is out of engagement with the lug 18. The pivot pin for the pawl is in the rear end of the elongated hole 14. Figure 4 shows the trigger in its position after its first movement. To assume the position shown in Figure 4 the trigger is rotated about its pivot so that its pawl 17 engages the lug 18 on the hammer. The hammer has not yet been moved. In the next part of the operation of the trigger it moves bodily backward, being pivoted by means of its pawl 17 on the lug 18. This bodily movement of the trigger brings the pawl 23 to a position where a further rotation of the trigger will cause this pawl to engage one of the teeth of the ratchet wheel for feeding the ammunition.

The pawl 23 does not engage one of the teeth 26 until the pawl 17 has withdrawn the hammer from the anvil. After the pawl 17 has partly withdrawn the hammer from the anvil the pawl 23 will engage one of the teeth of the ratchet wheel and rotate the ratchet wheel, while the pawl 17, through the operation of the trigger, continues to withdraw the hammer from the anvil.

In Figure 6 the parts are shown in the positions they have just before the hammer is released and the firing takes place. In this figure the pawl 17 is about to slip off of the lug 18, and the pawl 23 is about to slip off of the tooth 26 with which it has been in engagement for feeding the ammunition.

Figure 7 shows the parts in their positions after firing has taken place and the trigger has been partly released so it has been advanced bodily for the purpose of permitting the pawl 23 to pass by the next tooth of the ratchet wheel. In this figure the pawl 17 is in engagement with the cam surface 19 of the lug 18. This engagement aids in the positioning of the trigger so that the pawl 23 will pass by the next tooth to be engaged by it.

These successive stages of operation take place during each firing. The parts, constructed as they are, insures their free operation so that the operation of one part will not interfere with the operation of any other part.

I desire to comprehend within my invention such modifications as may be embraced within my claims and the scope of my invention.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a pistol, in combination with an anvil, means to feed a strip of ammunition across the anvil, a hammer having a cam surfaced lug thereon, means tending to hold the hammer against the anvil, a trigger having thereon a pawl to engage the lug to move the hammer from the anvil, a second pawl to engage and operate the strip feeding means, and automatically-operative means cooperating with the cam surface on the lug to return the trigger to its initial position free from the strip feeding means, said second pawl being arranged to engage said ammunition strip on the opposite side thereof from said feeding means.

2. In a pistol, means to feed a strip of ammunition, means to fire the strip of ammunition, a trigger having thereon a pawl to engage and operate the firing means and a second pawl to engage and operate the strip feeding means, said first-named pawl coacting with said firing means intermittently as a pivot about which the trigger swings to move the second pawl into position to engage the strip feeding means, said second pawl being arranged to engage said ammunition strip on the opposite side thereof from said feeding means.

3. In a pistol, means to feed a strip of ammunition, means to fire the ammunition, a trigger having thereon a pawl to engage and operate the firing means and a pawl to engage and operate the strip feeding means, said first-named pawl coacting with said firing means intermittently as a pivot about which the trigger swings to move the second pawl into position to engage the strip feeding means, and means tending to hold the trigger so that the pawls are free from the parts to be engaged thereby, said second pawl being arranged to engage said ammunition strip on the opposite side thereof from said feeding means.

4. In a pistol, a casing forming a barrel and a butt, an anvil in the casing at one end of the barrel, a ratchet wheel spaced apart from said anvil having teeth adapted to pass through and

to feed a strip of ammunition across the anvil, a hammer having a head adapted to engage the ammunition on the anvil, said hammer being supported in the barrel for reciprocation in a direction at an angle to the upper surface thereof, and a trigger connected for operating the hammer and having a pawl portion adapted to engage the tips of the teeth of the ratchet wheel.

5. In a pistol, a casing forming a barrel and a butt, an anvil in the casing at one end of the barrel, a ratchet wheel spaced apart from said anvil having teeth adapted to pass through and to feed a strip of ammunition across the anvil, a hammer having a head adapted to engage the ammunition on the anvil, said hammer being supported in the barrel for reciprocation in a direction at an angle to the upper surface thereof, and a trigger for operating the hammer and the ratchet wheel, said trigger having pawls to operate the hammer and the ratchet wheel, one pawl engaging the tips of the teeth of the ratchet wheel and operating the ratchet wheel after the other pawl has begun its operation on the hammer.

6. In a pistol, in combination with an anvil, a ratchet wheel having teeth for passing through and feeding an ammunition element to the anvil, a hammer to fire the ammunition on the anvil, a spring tending to hold the hammer against the anvil, and a trigger having thereon a pawl to engage and move the hammer from the anvil during a certain period of time and a second pawl arranged to engage the ratchet teeth and rotate the ratchet wheel during a part of the same period of time, said pawls releasing the hammer and the ratchet wheel at substantially the same time, said second pawl being arranged on the opposite side of said ammunition element from said ratchet wheel.

7. In a pistol, in combination with an anvil, a ratchet wheel for feeding an ammunition element to the anvil, a hammer to fire the ammunition on the anvil, a spring tending to hold the hammer against the anvil, a trigger having thereon a pawl to engage and move the hammer from the anvil during a certain period of time and a second pawl to engage and rotate the ratchet wheel during a part of the same period of time, said pawls releasing the hammer and the ratchet wheel at substantially the same time, and means tending to hold the trigger in a position that the pawls are out of engagement with the hammer and the ratchet wheel, said second pawl being arranged on the opposite side of said ammunition element from said ratchet wheel.

8. In a pistol, in combination with an anvil, a hammer, means tending to hold the hammer against the anvil, a toothed wheel for feeding an ammunition element across the anvil, and a trigger for operating the hammer and the toothed wheel, said trigger having thereon a pawl to engage the hammer and a second pawl to engage the toothed wheel, said second pawl having thereon a cam portion and a fixed member engaging said cam portion to position the trigger so that the first-named pawl will engage the hammer, said second pawl being arranged on the opposite side of said ammunition element from said toothed wheel.

9. In a pistol, a casing having therein an anvil, a hammer slidably supported in the casing, means tending to hold the hammer against the anvil, a toothed wheel for feeding an ammunition element across the anvil, a trigger in the casing, a spring tending to hold the trigger in inoperative position and return it to such position, said trigger having thereon a pawl to engage and operate the hammer and a second pawl to engage and operate the toothed wheel, and cam means associated with said casing and said second pawl for causing the second pawl to hold the trigger in a position so that when it is operated the first pawl will engage the hammer.

10. In a pistol, a casing having therein an anvil, a hammer supported in the casing, means tending to hold the hammer against the anvil, a toothed wheel for feeding an ammunition element across the anvil, a post in the casing, a trigger having an elongated hole to receive the post, a spring tending to hold the trigger in inoperative position with the post engaging the trigger at one end of the hole and adapted to return the trigger to such position, said trigger having thereon a pawl to engage and operate the hammer and a second pawl to engage and operate the toothed wheel, and cam means associated with said casing and said second pawl for causing said second pawl to hold the trigger in such a position that the first-named pawl will engage the hammer when the trigger is operated.

ROBERT J. RICKENBACHER.