

(No Model.)

3 Sheets—Sheet 1.

R. C. FAY.
MAGAZINE FIREARM.

No. 547,602.

Patented Oct. 8, 1895.

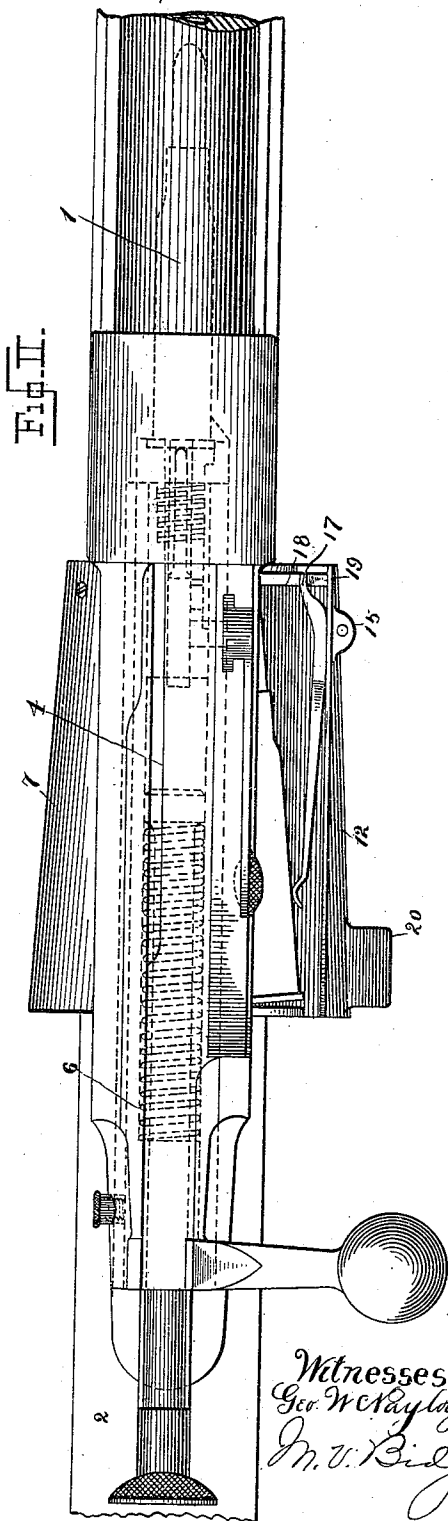
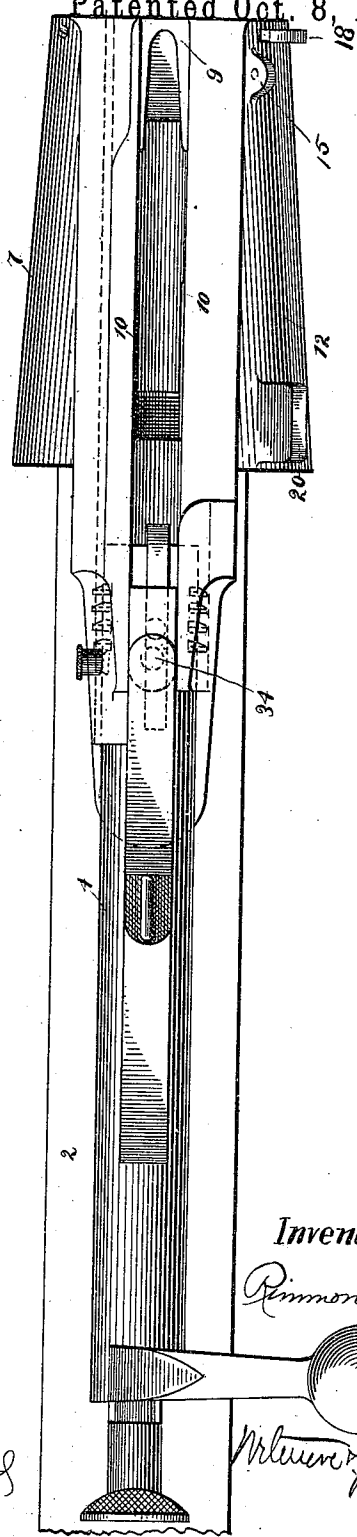


Fig. I.



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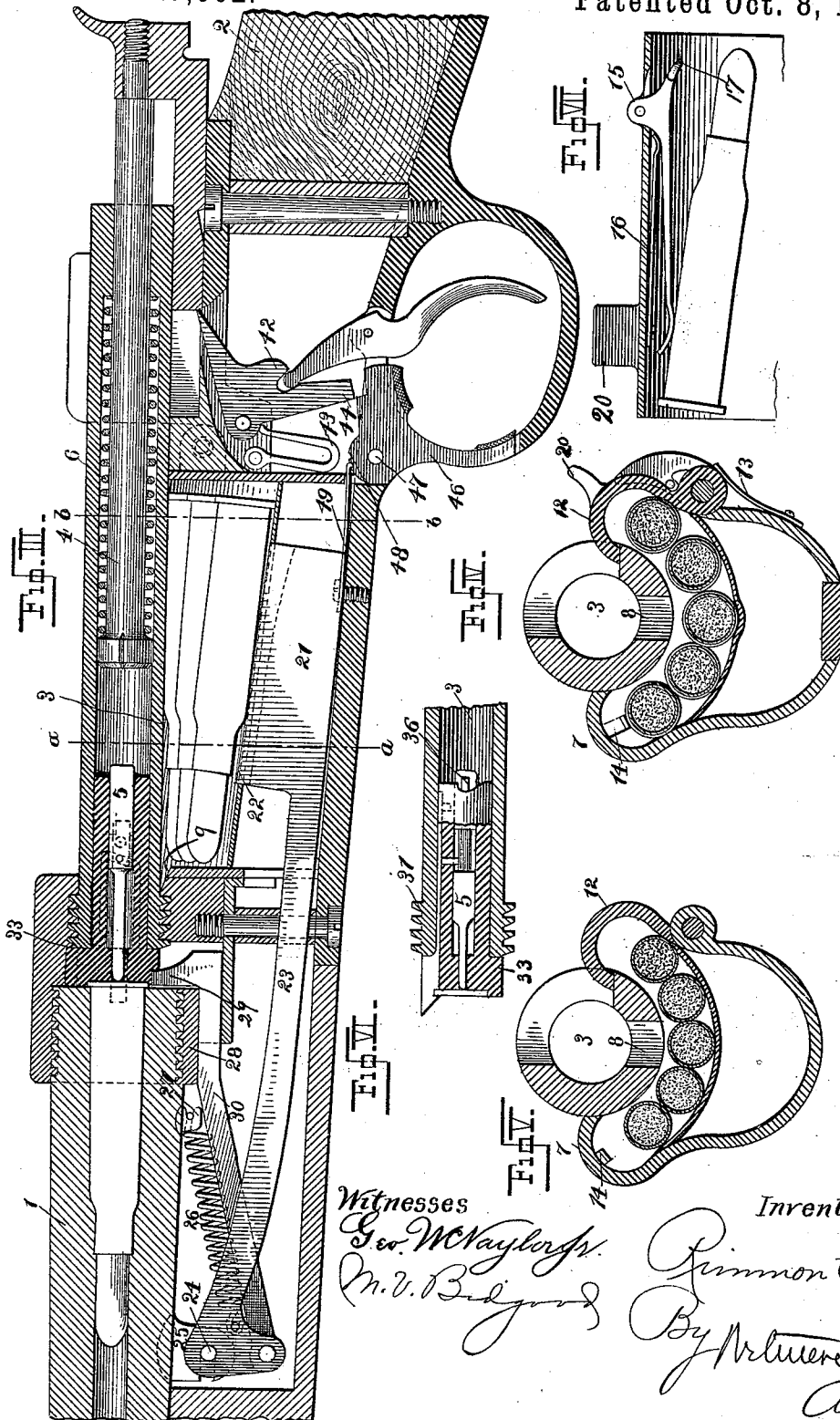
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(No Model.)

3 Sheets—Sheet 3.

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Fig. VII.

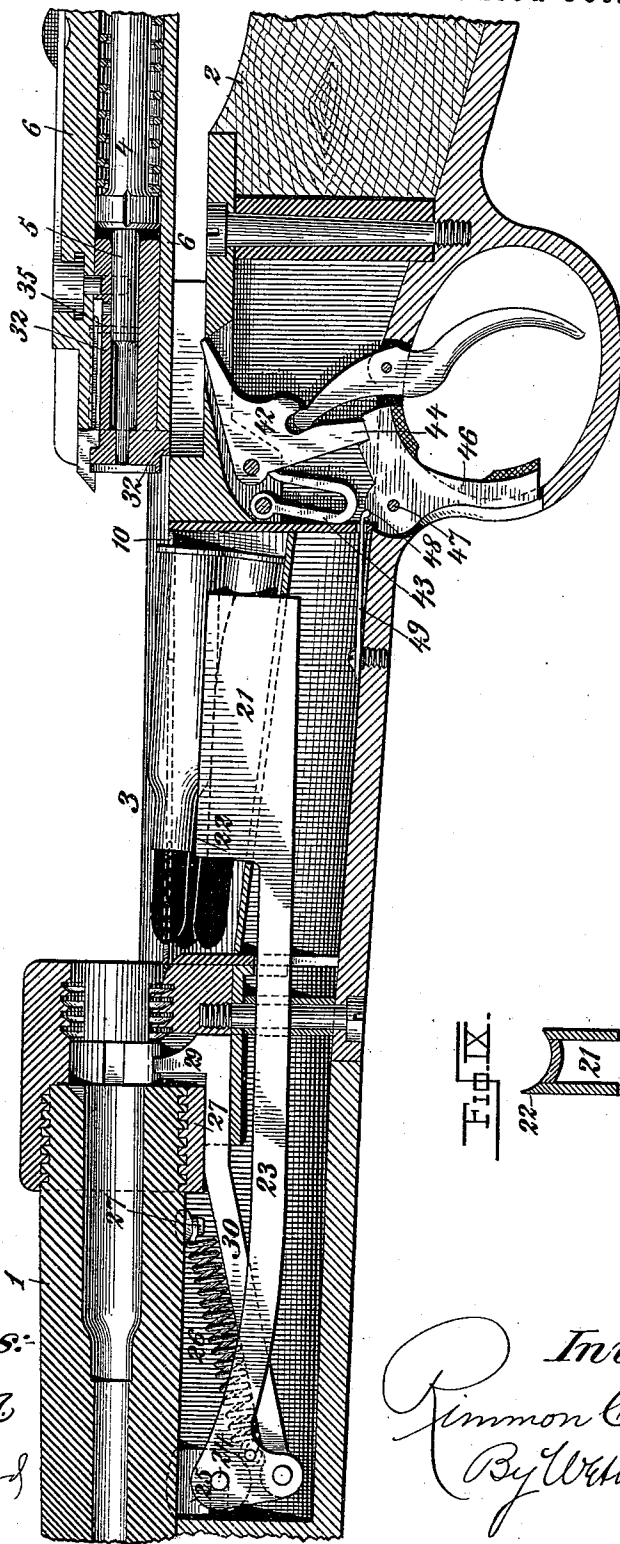


Fig. IX.



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UNITED STATES PATENT OFFICE.

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MAGAZINE-FIREARM.

SPECIFICATION forming part of Letters Patent No. 547,602, dated October 8, 1895.

Application filed July 17, 1894. Serial No. 517,803. (No model.)

To all whom it may concern:

Be it known that I, RIMMON C. FAY, a citizen of the United States, residing at Ilion, county of Herkimer, State of New York, have invented certain new and useful Improvements in Magazine or Repeating Firearms, of which the following is a specification.

My improvements relate, in the first place, to that class of repeating firearms in which a magazine adapted to receive a small number of cartridges, usually five, is arranged in immediate proximity to the receiving-chamber of the arm, into which the cartridges are adapted to be forced sidewise, as distinguished from those forms of repeating firearm in which a comparatively large number of cartridges are fed "end on" through a long tube to the receiver.

My invention has for its object the simplification of the construction of the magazine and its arrangement with reference to the cartridge-receiver, and the improvement of the cartridge-feeding devices operating in connection therewith, so that while the appearance of the arm is improved the cartridges are supplied to the receiver without possibility of their movement being misdirected or impeded—as, for instance, by their rims or heads interlocking.

My invention further comprises improvements especially applicable to such repeating firearms as have their breech closure in the form of a bolt, called "bolt-guns," said improvements comprising a construction and arrangement, hereinafter more fully described, of locking-lever and locking-trigger, preventing the accidental opening of the breech while the gun is being fired and locking the sear and trigger against accidental firing.

Referring to the accompanying drawings, which form a part of this specification, Figure I is a top view of a gun-lock embodying my improvements, the bolt being retracted and the magazine closed. Fig. II is a similar view with the breech closed, the firing-pin cocked, and the magazine open. Fig. III is an axial vertical sectional view of the gun-lock, showing a cartridge in place, the breech closed, and the gun cocked. Figs. IV and V are

transverse sectional views in planes indicated by lines *b b* and *a a* on Fig. III. Fig. VI is a sectional view of an alternative construction of the firing-pin and holder therefor. Fig. VII is a detail view of the spring for the magazine-shutter. Fig. VIII is a longitudinal section with the bolt withdrawn. Fig. IX is a section of the cartridge-lifter 21.

1 is the barrel, 2 the stock, 3 the receiving-chamber, 4 the bolt, 5 the firing-pin, and 6 the mainspring of a repeating rifle. These parts may be of the represented or other form.

My improved magazine is shown at 7. It is arc-shaped in cross-section and arranged below the receiver and co-axial therewith. Through the center of the under side of the magazine there is a slot in which the cartridge-carrier (to be described hereinafter) plays, and at each end of this slot the metal forming the bottom of the magazine is fashioned into a groove, into which the head and point of the central cartridge approximately fit, so that the cartridge will be centered in the magazine and cannot be displaced by the pressure of others upon it. A passage 8, (Figs. IV and V,) leads from the magazine into the receiving-chamber 3, which passage is beveled at front, as shown at 9, Fig. III, to permit the ball of the cartridge to slide readily into the barrel when it is lifted by the feeding-arm or cartridge-carrier, as hereinafter described. The rear end of the passage 8 is slightly narrowed at the top by fins 10, so that the cartridge, being arrested by such fins, cannot move directly up from the magazine into the receiver, but must first be pushed forward by the bolt 4 until the cartridge-head reaches the portion of said passage forward of said fins, where the passage is wide enough to allow the head of the cartridge to pass up through it. The magazine is open at one side, and has at said side a hinged gate 12, adapted to be held open or closed by a spring 13, which is fixed to the side of the gun-body and bears on suitable surfaces on the gate. The closed side of the magazine has a flat spring 14, fixed within it and adapted to bear constantly on a cartridge in the left side of the magazine and feed it downward toward

the center of the magazine. To the under side of the gate 12 is pivoted an arm 15, Fig. VII, which is pressed downward by the spring 16 against a cartridge in the right side of the magazine. The spring which drives forward this arm is stronger than the opposing spring on the other side of the magazine, so that the cartridges are used from this side first. This end is partly accomplished by having one side of the cartridge-lifter higher than the other, but is made more certain by the stiffer spring being on the side toward the lower portion of the lifter. Moreover, the springs, when free from compression, do not meet at the median line of the gun, but extend no farther inwardly than to the sides of the cartridge-lifter, leaving space for the same to operate between the ends of said springs or the terminal pieces attached thereto. The spring to the right of the gun being the stronger, the cartridges on that side are fed first to the magazine; but when said spring reaches the end of its travel it becomes inoperative, and the left-hand spring having then nothing to oppose its action feeds its cartridges in turn. From this it follows that so long as any cartridges remain in the magazine to the left of the center they may be held in reserve and new one added singly, as fired, at the right through the gate. In this way the necessity of the usual cut-off is obviated.

The arm 15 has an extension 17, forward of its pivot on the gate, which, when the gate is opened for the purpose of inserting cartridges into the magazine, strikes against a fixed lug 18, Fig. II, on the gun-body, and so forcibly throws back the arm 15 close against the gate, out of the way. The lug 18 projects through a slot 19 in the gate. A thumb-piece 20 is provided on the gate to be used in opening it.

The cartridge-carrier 21 is adapted to pass through a slot 22 in the bottom of the magazine, (see Fig. III,) and is carried by a long forwardly-projecting lever 23, which is pivoted at 24 to a lug 25, formed or fixed on the underside of the barrel. A spring 26, fixed at one end to the arm 23 and at the other to a pin or projection 27 from the gun-body, tends to throw the carrier 23 and a cartridge thereon upward, while the carrier is positively depressed when the breech is closed, by impingement of the front of the bolt on the vertical stud 29, Fig. VIII, of a sliding rod 30. It will be seen that the cartridge-carrier, with its lever, has a very limited movement and that in the most effective direction. As shown in Figs. III and IV, the carrier 21 is higher on one side than on the other, preferably on the left side, the curved dotted line, Fig. III, showing the height of the concealed side, so that the cartridge nearest the carrier on the right side of the carrier will enter and occupy the carriage before the carrier passes below the cartridge adjacent to it on the left-hand side. Thus there is no chance for two cartridges to be fed together from opposite

sides half-way into the carrier, there to be arrested by impingement against each other.

By the above-described arrangement, in which the magazine is arranged around the receiver, the cartridges are fed laterally therefrom to the carrier and then individually fed vertically by the carrier. The magazine is reduced so that it extends very slightly beyond the stock on each side, and by taking the central cartridge from the magazine it is impossible for the cartridge-heads to interlock against each other.

The bolt 4 has near its forward end a plurality of bolt-locking surfaces 31, preferably in the form of an interrupted screw, which, in addition to its office of holding the breech closed during discharge, assists, during the revolution of the bolt, in the final step of loading the gun to draw the parts closely together, and in the reverse operation easily loosens the cartridge should it be stuck in the gun.

The bolt, which is tubular to allow the firing devices to play within it, has at its forward end and fitting therein the firing-pin holder 32, Fig. VIII, which receives the shock of the discharge, and which carries the shell-extractor and firing-pin 5. This part enters the end of the bolt like a plug and has a shoulder 32, which limits its motion. It is held in place by a pin 34, passing through the bolts and entering a semiannular depression near its rear end, by which construction the bolt may be rotated on the firing-pin holder, but the two cannot be separated. The firing-pin has a small transverse pin 35, Fig. VIII, projecting through a longitudinal slot in the firing-pin holder to enter an inclined channel on the inner surface of the bolt. By this arrangement the rotation of the bolt around the firing-pin holder moves the firing-pin longitudinally. From each end of the said inclined channel a longitudinal groove leads to the forward end of the bolt, so that the firing-pin holder and firing-pin may be withdrawn from the bolt. The firing-pin holder has on one side at its forward end a lug 33, Fig. III, which projects radially as far as the tops of the threads of the interrupted screw of the bolt. From this construction it follows that when the gun is being opened the first effect is that the rotation of the bolt around the firing-pin holder withdraws the firing-pin positively from the cartridge to a position of safety, which it must maintain until the breech is again entirely closed. A premature explosion is thus provided against.

The firing-pin being separate from the striker or hammer and being carried in a holder of its own, it follows that the loss during the process of cleaning or assembling the gun of the firing-pin holder (which it will be remembered receives the shock of discharge) renders impossible the discharge of the gun. In guns where this provision is not made the gun may be fired without this part, and would in that case be injured or burst.

The sear 42 has its toe pressed up by a

spring 43 and its heel 44 adapted to engage a notch in a locking-trigger 46, which is pivoted at 47 on the trigger-guard, and which has two notches 48 to receive a locking-spring 49. In the position of the locking-trigger shown, with the spring 49 in the forward notch, the nose of the locking-trigger is thrown away from the heel of the sear and the gun may be fired; but by pushing the rearwardly-projecting part of the safety-trigger upward the notch engages with said sear and prevents the discharge of the piece.

The operation of the gun is briefly as follows: The magazine being empty and the breech mechanism being closed, the gun is loaded by throwing open the magazine-cover and inserting the cartridges into the opening of the magazine. The cover is then closed and the bolt-handle rotated to a vertical position. By this motion the interrupted screw-threads on the end of the bolt are rotated into their channels and the bolt is drawn slightly backward. The firing-pin is also rotated by the bolt, which causes its lug to move along the helical path on the rear of its holder and to be thereby withdrawn to a position of safety. By the same movement the end of the firing-pin holder is withdrawn from the lever, which depresses the cartridge-holder and allows said holder to be lifted by its spring. The bolt is now withdrawn to the full extent of its travel. When the end of the bolt passes the base of the cartridge below it, the cartridge-carrier rises still farther, bringing the head of the cartridge up, so that it will be struck by the bolt on its return. The bolt is now pushed forward, driving the cartridge into the barrel of the gun. When the notch on the hammer strikes the sear, its motion is arrested and the gun is cocked by pushing home the bolt. Upon turning the lever down into its horizontal position the cam which controls the motion of the firing-pin pushes said pin forward into position to explode the primer when struck by the hammer. The gun having been fired the above operations are repeated and the shell is drawn from the gun

and is thrown out by the ejector, another cartridge taking its place at once.

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

1. In a repeating fire-arm having a suitable cartridge receiving chamber, a magazine concentric with said chamber, a cartridge carrier, springs of different tensions located in said magazine for feeding the cartridges laterally, first from one side and then the other of the magazine to said carrier, and means for operating said carrier to carry the cartridge radially into the receiving chamber, substantially as set forth.

2. In a repeating fire-arm, the combination of a gun-body, having a suitable cartridge receiving chamber, a magazine arranged coaxially of said chamber and opening into the same, and provided with a slot having a depression at each end thereof for centering a cartridge, and means for transferring the central cartridge of said magazine to said chamber, substantially as set forth.

3. In a repeating fire-arm having a suitable cartridge receiving chamber, and a cartridge carrier having a seat for a cartridge, a magazine arranged partly on each side of said carrier, said carrier having one side higher than the other so that the cartridges from the side of the chamber opposite the higher side of the carrier will be fed first into the carrier, and a spring for feeding the cartridges laterally of said carrier from that side, substantially as and for the purpose set forth.

4. In a fire-arm, the combination of a hammer and its spring, a trigger, a pivoted sear in engagement with the trigger, and a trigger lock pivoted on the trigger guard and adapted to be moved into and out of engagement with the sear, and suitable means for holding the lock in either position, substantially as shown and described.

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Witnesses:

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