A. E. BARTHEL.
Revolving Fire-Arm.

No. 221,146. Patented Nov. 4, 1879.

Fig. 1

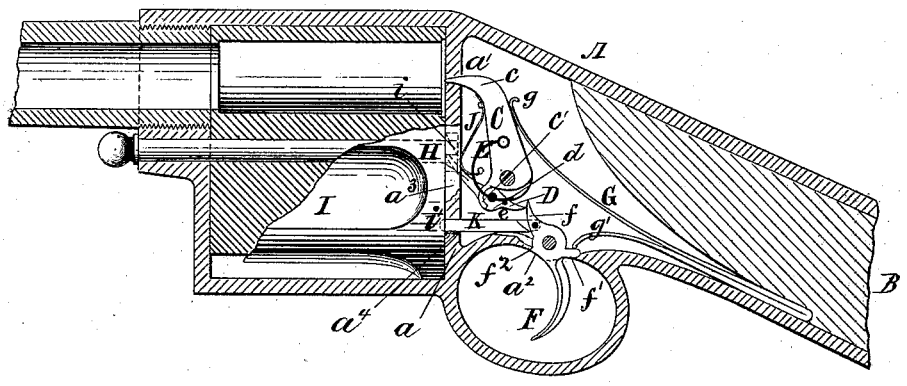
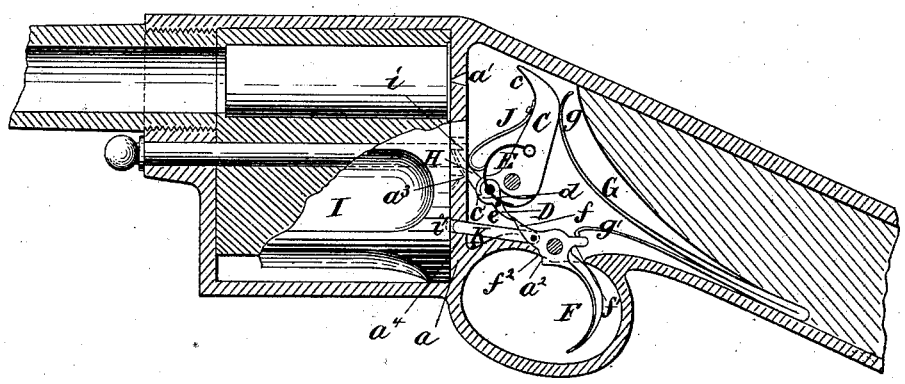


Fig. 2



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IMPROVEMENT IN REVOLVING FIRE-ARMS.

Specification forming part of Letters Patent No. **221,146**, dated November 4, 1879; application filed April 28, 1879.

To all whom it may concern:

Be it known that I, A. EDWARD BARTHEL, of Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Fire Arms, which are fully described in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a longitudinal section of a portion of a gun and stock, illustrating the application of my improvement, the firing mechanism being shown in the position after discharge and in readiness for cocking, and Fig. 2 a similar view of the same, the firing mechanism being shown cocked and just ready for discharge.

My invention relates to that class of fire-arms in which the discharge of the piece and the cocking of the firing mechanism are effected automatically, or, in other words, the entire operation is performed by simply pulling the trigger; and the object of my present improvement is to decrease the number of parts necessary to perform this work, to simplify their construction, and adapt them to be inclosed within the stock-case.

In this latter respect the present improvement is constructed on the same general plan as is shown in a prior application for Letters Patent made by me; but the devices employed are different in construction and operation from those shown in my prior invention.

The invention consists in special devices and combinations thereof constituting the firing mechanism, all of which will be hereinafter fully described, and more definitely pointed out in the claims.

In the drawings, A represents the stock-case, which is adapted to receive the stock B, the latter being inserted and secured in the case in the usual way. The case is closed in front of the stock by a diaphragm, *a*, which is provided with a discharge-aperture, *a'*.

In the under side of the case is another opening, a^2, which accommodates the trigger; and there must also be an opening through the diaphragm for the passage of cartridges into the firing-chamber if a repeating-arm is used.

A small opening, a^3, is also made in the diaphragm for the accommodation of a pawl or dog, which rotates the firing-chamber when the latter is made to revolve. In this instance the opening is arranged near the central part of the diaphragm, and below it is still another aperture, a^4, the purpose of which will be hereinafter explained. With these exceptions, however, the stock-case is closed and no portion of the firing mechanism projects therefrom, so as to be exposed on the outside, except the trigger.

Within the stock-case a chamber is provided by cutting away the stock behind the diaphragm, as in my prior invention, and within this chamber the several parts of the firing mechanism are arranged. This mechanism consists of a firing-hammer, C, which is made substantially straight, and is provided at its upper end with a projection, *c*, extending forward nearly at right angles to the body of the hammer, and which constitutes the firing-pin. The hammer is pivoted to the stock-case within the chamber, and is arranged so that the pin will enter the discharge-aperture *a'*, as shown in Fig. 1 of the drawings.

The lower end of the hammer extends a little below the pivot and projects slightly forward, and to this projecting portion is pivoted a small dog or lever, D. A portion of the lower end of the hammer is cut away, so as to form a seat or rest for this dog, a small section, *c'*, being left entire at the extreme front end, so as to provide a stop against which a projection, *d*, on the dog strikes, so as to limit the movement of the dog in an outward direction.

A bow-spring, E, is secured at one end of the hammer above the pivot, and is bent forward and downward, the other end being arranged to rest upon a pin, *e*, on the dog D. This spring will act to throw the dog open or turn it out from the hammer.

The trigger F is pivoted to the case just within the chamber in the usual manner. Above the pivot it projects slightly forward, and is tapered to form a toe, *f*, the front face of which is slightly convex, as shown in the drawings. This toe extends upward in such a position as to just pass by the outer end of the dog D when the latter is thrown outward by the action of its spring, as shown in Fig. 1 of the drawings. The trigger is also provided with a projection, *f'*, just behind the pivot, and in front of the pivot is a stop, f^2,

which strikes against the edge of the case at the forward end of the slot and limits the forward vibration of the trigger.

A bent leaf-spring, G, is arranged immediately behind the hammer and trigger, the folded end thereof being secured between the stock and case, as shown in the drawings. The upper leaf, *g*, of this spring extends forward and bears upon the upper portion of the hammer C. The lower leaf, *g'*, is projected forward, and arranged so that its extremity rests upon the rear projection, *f'*, of the trigger.

It will thus be seen that by the action of this spring both the hammer and trigger, when released from the operation of any other force, will be thrust forward by the action of this spring.

The two members of the spring may be made separately, if desired, instead of in one piece, as shown in the drawings.

The pawl H is attached to the lower end of the hammer on the side opposite to the dog D, and is arranged to enter the aperture a^3, to engage with the ratchet *i* on the revolving firing-chamber I. The spring J, fastened at one end to the hammer, and at the other arranged to bear on the pawl, causes the latter to engage with the ratchet. The firing-chamber I is also provided with a series of small recesses, *i'*, in the rear-end face thereof, arranged one for each cartridge-chamber, and so that with each turn of the chamber one of these recesses will be brought opposite the aperture a^4 in the diaphragm *a*.

A pin, K, is pivoted at one end of the trigger, above the pivot of the latter, and is extended forward until its front end rests just within the aperture a^4.

The operation of this improvement is as follows: The parts being in position, as shown in Fig. 1 of the drawings, it is evident that when the trigger is pulled back its toe *f* strikes against the end of the dog D, and will force the lower end of the hammer forward, thereby retracting the upper end thereof, on which is the firing-pin. At the same time the pawl H rotates the firing-chamber the proper distance, and the pin K is thrust forward, and at the end of the rotation enters one of the recesses *i'* and locks the chamber in position. This is accomplished when the toe of the trigger is just about to leave the end of the dog of the hammer, as shown in Fig. 2 of the drawings. A continuation of the pull backward on the trigger at this instant releases the dog from the action of the trigger, when the hammer immediately springs forward under the force of the leaf *g* of spring G, and at the same time, the trigger being released, is thrown forward by the action of the leaf *g'*, the toe passing back underneath the dog D, which yields on its pivot to accommodate this movement, but is immediately turned outward again as soon as the toe has passed the outer end, thereby bringing all the parts again into the position shown in Fig. 1 of the drawings. It will thus be seen that the piece may be discharged as rapidly as the trigger can be vibrated.

It will, of course, be understood that the pawl H and the pin K are not necessary, except when this improvement is applied to revolving arms, and even then the lock-pin may be employed or not, as desired.

It will be seen, then, that the firing mechanism proper consists of but three essential parts—namely, the hammer, the trigger, and the spring G—the dog D and its spring being regarded as an appendage of the hammer; or, if the two latter pieces be regarded as distinct devices, then the firing mechanism proper consists of but five parts.

This mechanism is exceedingly cheap and simple, and it is hardly possible to reduce the number of parts here shown. The action is certain. There is scarcely any liability to derangement of the parts, and for rapid firing it is one of the simplest devices known to me.

It will be understood that this firing mechanism may be applied to fire-arms of different kinds, and that it has all the advantages which are secured by inclosing the mechanism within the stock-case to guard against accident and the admission of dirt.

Some of the devices shown may be changed in form and arrangement somewhat without departing from the principle of construction and operation herein set forth, and therefore I do not limit myself to the precise form and relative arrangement of the several parts herein described, and shown in the drawings.

I am aware that devices have been heretofore shown by which the retraction of the trigger is made to operate upon the hammer, so as to retract it, and then when it has been sufficiently drawn back to let it slip to deliver the blow; and I do not claim, broadly, devices for accomplishing these results; but

What I do claim, and desire to secure by Letters Patent, is—

1. The combination of the hammer C, the dog D, pivoted to the end of the hammer below the pivot upon which it vibrates, the pawl H, pivoted on a line with the dog D and of the toe *f* upon the trigger F, the pawl H being arranged in relation to the toe of the trigger as set forth, whereby it is pushed in the act of firing and made to turn the chambers, as set forth.

2. The trigger F, provided with the toe *f*, acting upon the dog D, in combination with the pin K, pivoted to said trigger above the pivot thereof, and the revolving chamber, as set forth.

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Witnesses:

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