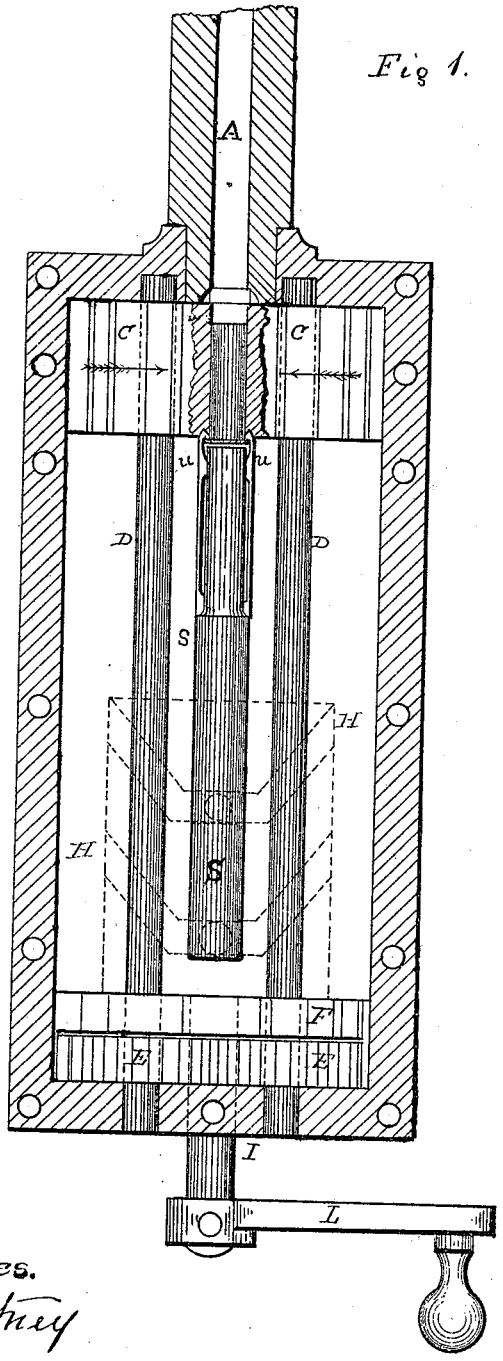
3 Sheets--Sheet 1.

De W. C. FARRINGTON.

Machine-Gun.

No. 165,318. Patented July 6, 1875.

Fig 1.



Witnesses.
Benj. D. Whitney
R. L. B. Belcher

Inventor:
De Witt C. Farrington

De W. C. FARRINGTON.

Machine-Gun.

No. 165,318. Patented July 6, 1875.

Fig 2.

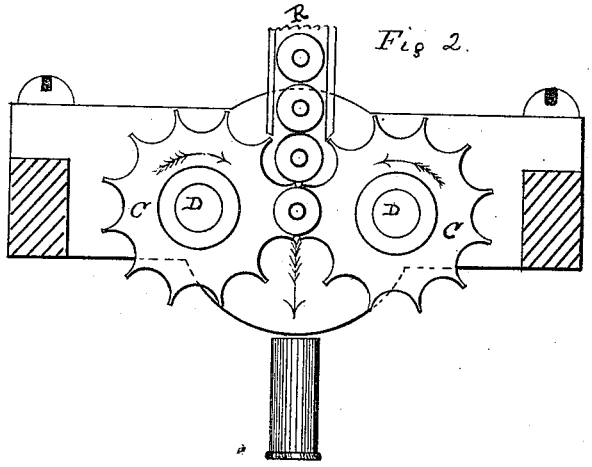
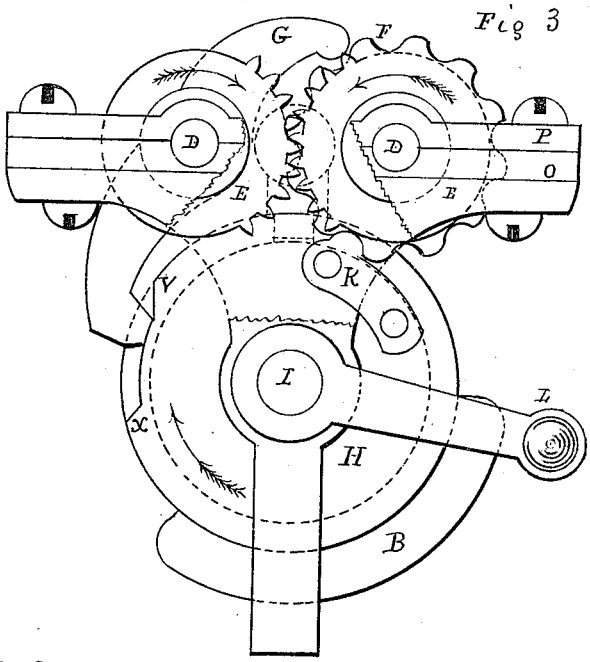


Fig 3



Witnesses,
Chas. D. Whitney
R. L. B. Clarke

Inventor:
De Witt C. Farrington.

3 Sheets--Sheet 3.

De W. C. FARRINGTON.

Machine-Gun.

No. 165,318. Patented July 6, 1875.

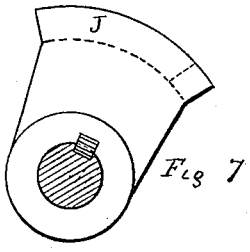


Fig 7

Fig 10.

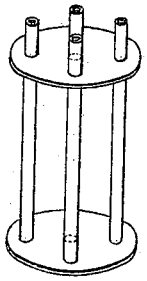


Fig 9

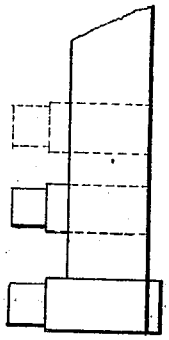


Fig 8

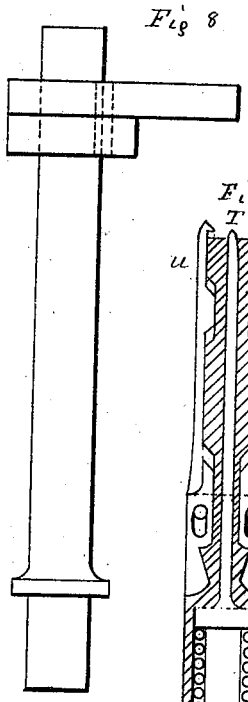


Fig 4

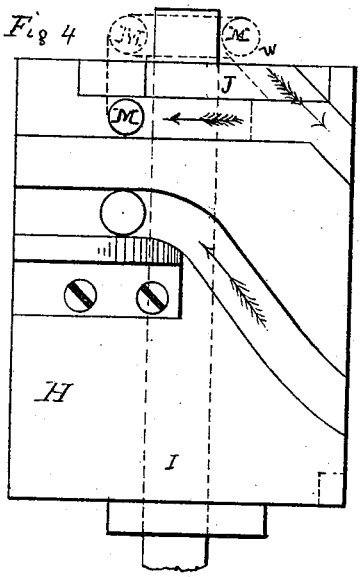


Fig 5

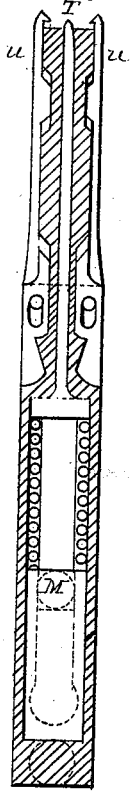
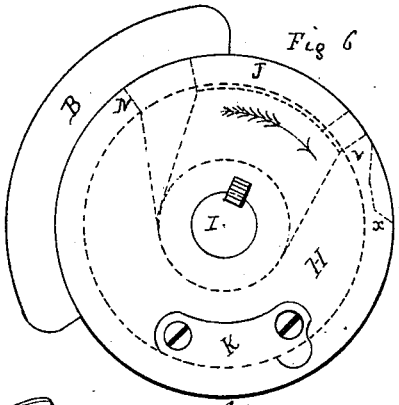


Fig 6



Witnesses.

Ruy D. Whitney

R. L. B. Clarke

Inventor.

De Witt C Farrington

UNITED STATES PATENT OFFICE.

DE WITT C. FARRINGTON, OF LOWELL, MASSACHUSETTS.

IMPROVEMENT IN MACHINE-GUNS.

Specification forming part of Letters Patent No. **165,318**, dated July 6, 1875; application filed July 3, 1875.

To all whom it may concern:

Be it known that I, DE WITT C. FARRINGTON, of Lowell, county of Middlesex and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Automatic or Machine Guns; and I do hereby declare that the following is a full, clear, and exact description thereof, such that a person skilled in the art to which it appertains may be able to make and use the same.

This invention relates to that class of guns known as "mitrailleuse or machine guns," and for its description reference is made to the drawings hereto attached and forming part of this specification.

Like letters indicate corresponding parts in the several figures of the drawing.

Figure 1 is a horizontal longitudinal section of the breech part of the gun, showing also a portion of the barrel. Fig. 2 is a transverse section through the frame, showing the front ends of the carrier-rolls and a portion of the feed in elevation. Fig. 3 is a rear elevation, showing the ratchet, pawl, driving-knob, and a portion of the propelling-cam, as well as the recoil-plate or abutment. Fig. 4 is an elevation of the propelling-cam and cocking-plate, showing the main shaft in dotted lines. Fig. 5 is a longitudinal section of the firing-plunger. Fig. 6 is a rear view of the propelling-cam, showing the cocking-plate in dotted lines, and the knob which operates the ratchet. Fig. 7 is a front elevation of the cocking-plate, showing its connection with the driving-shaft. Figs. 8 and 9 are views in detail of parts of the firing mechanism. Fig. 10 is a perspective, showing the barrels and their attachment to the frame.

The several parts are designated by the following letters, viz: A is the barrel; B, the recoil-plate; C C, the carrier-rolls; D D, the shafts for carrier-rolls and gears; E E, gears for driving the carrier-rolls; F, the ratchet; G, the pawl; H, the propelling-cam; I, the main driving-shaft; J, the cocking-plate; K, the driving-knob; L, the crank; O, the bed-plate; P, the cover; R, the hopper; S, the plunger; T, the firing-pin; *u u*, the extractors.

The gun is operated as follows, viz: A cartridge is deposited in the hopper R, falling into or between the fluted carrier-rolls C C, as shown in Fig. 2. Motion is given to the propelling-cam H by means of the crank L, and when the driving-knob K comes around in contact with the ratchet F, the gears E E and carrier-rolls C C, all of which are firmly attached to the shafts D D, are moved a sufficient distance to bring a single cartridge in line with the plunger S and chamber of the barrel A, and between the same. The continued motion of the propelling-cam H causes the plunger S to be carried forward, pushing the cartridge into the chamber of the barrel. In its forward motion the stud M of the firing-pin T comes in contact with the cocking-plate J, holding back the said firing-pin, and compressing the spiral spring which surrounds it. On reaching the extremity of the cocking-plate J, the stud M being released, the firing-pin T is forced forward by the spring, and, striking the primer, explodes the cartridge. The continued motion of the propelling cam withdraws the plunger, the firing-pin, and the empty cartridge-shell by means of the hook-extractors *u u*. When the empty cartridge-shell is fully extracted, the propelling-cam has made one revolution. As the cam proceeds to make a second revolution, another cartridge is brought before the plunger, and the empty shell dropped, as shown in Fig. 2. After the ratchet F has moved forward one tooth, the pawl G is forced between the teeth of the same by a cam, V, on the propelling-cam H, securely locking the carrier-rolls, and at the proper time the pawl G is released by another cam, X, upon the propelling-cam, to allow the ratchet and carrier-rolls to be revolved the proper distance, in order to place another cartridge in position for entering the chamber of the barrel.

By reversing the motion of the propelling-cam, the cocking-plate J, which is firmly attached to the cam-shaft I, is thrown back, as shown by dotted line N in Fig. 6, to allow the stud of the firing-pin to pass it, as shown at W in Fig. 4.

The plunger contains the firing-pin and spiral spring for exploding the cartridge, similar to that used in many bolt guns, and is clearly shown in Fig. 5.

This mechanism may be used in conjunction with more than one barrel held apart from

and parallel with each other, so that all but one may be cooling while another is being fired, as shown in Fig. 10, where the barrels are hung in a frame which is suspended upon a central shaft and attached to the frame below the cartridge-chamber, so that the barrel which is in use is at all times the topmost barrel. For example, after firing through one barrel for ten minutes another barrel may be brought up, and if four barrels are used the first would have cooled thirty minutes before being again brought into use. It is obvious that these barrels or the frame may be secured in the desired position by any suitable latch, bolt, or catch, which may be released and the barrels turned at the will of the operator, it not being my present intention to operate the barrels, or to cause them to rotate automatically.

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

1. In an automatic or machine gun, the intermittently-rotating fluted carrier-rolls, adapted to take one cartridge at a time and place it in line between the plunger and the barrel, and hold it there until the same is forced into the barrel for discharge, and then, upon the empty shell being extracted, the rolls permit the shell to drop, in combination with the plungers and other mechanical means, as above described, by which each cartridge is presented singly to, and forced into, the chamber and discharged, and the empty shell withdrawn, substantially as set forth.

2. The combination of one or more barrels, fluted carrier-rolls for cartridges and cartridge-shells, an operating-cam, and plunger, to operate substantially as and for the purpose described.

3. The pawl or stop, in combination with the driving-knob and other means above described for imparting movement to the carrier-rolls, whereby an intermittent rotary movement is given to said rolls, so as to successively bring cartridges singly into position in front of the plunger, as set forth, and for the purpose described.

4. In an automatic or machine gun having a rotative operating-cam hung loosely upon the driving-shaft, a cocking-plate rigidly secured to said shaft, in combination with the loose driving-cam, said cam being constructed to permit a relative movement between the cocking-plate and the cam, whereby the hammer-stud will be switched and the gun cocked and fired when operated in one direction, but when reversed the hammer-stud may be permitted to move freely, substantially as set forth.

5. In a machine-gun, a series of barrels hung in a frame, as described, and adapted to be successively brought into position at the will of the operator, after a plurality of shots have been fired from one of the barrels, substantially as and for the purpose set forth.

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Witnesses:

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R. L. B. CLARKE.