

Repeating Fire Arm.

Patented May 6, 1862.





# UNITED STATES PATENT OFFICE.

EDMUND MAHER, OF NEW YORK, N. Y.

## IMPROVEMENT IN REPEATING FIRE-ARMS.

Specification forming part of Letters Patent No. **35,167**, dated May 6, 1861.

*To all whom it may concern:*

Be it known that I, EDMUND MAHER, of the city, county, and State of New York, have invented a new and useful Improvement in Guns; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making part of this specification.

Figure 1 is a vertical and longitudinal section in part of the improved gun. Fig. 2 is a horizontal section of same at the line 1 2 of Fig. 1. Fig. 3 is a rear elevation of same. Fig. 4 is a side view of the transverse shaft and grooved cam for alternately giving motion to and holding the magazine or cartridge-chamber bar.

Similar letters in the figures refer to corresponding parts.

This invention relates to that class of guns having movable magazines or charged cartridge-chamber bars at the open breech end of the barrel; and it consists in the employment of a peculiar-formed grooved cam secured on a horizontally-revolving shaft immediately below the said magazine or chambered bar, and in such relation to studs or pins and grooves on the lower surface of the same as by its continued rotation to successively move the cartridge-chambers in the bar immediately opposite the breech end of the barrel and hold them in that position the required time to be fired, thus by a single device performing two functions in such a manner that the greatest accuracy in the position of the cartridge-chamber relatively to the bore of the gun is attained and that firmness of hold so necessary at the time of firing between the parts produced, not depending upon a spring-dog or cog-teeth of a rack and pinion therefor, but upon rigid tongues and grooves combined with studs and right-angled portions of the flanges of the cam, said parts making as snug a fit between one another as is practicable, while they are free to move out of contact without friction at each adjustment of the charged chamber-bar; and also in providing a means of moving the entire gun a slight distance on its pivot simultaneously with every movement of the chambered bar past the breech of the gun-barrel, thus automatically changing the aim horizontally to the distance required to strike the soldier of the enemy next in rank by the aid of the same mechanism used in adjusting

the respective charged chambers in line with the bore of the gun. In the advance of a single rank or platoon of men, the necessity of having a sure aim and steady means of changing the aim to fresh points must be obvious.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

The gun-barrel A, which is designed to be of the ordinary musket size, is screwed or otherwise secured in a stock or frame, B, properly pivoted below on an adjustable frame of a suitable carriage-tripod or other support. The open breech end of the barrel is even with the forward surface of a smooth rectangular transverse space in the stock or frame, in which space the magazine or chambered bar C fits tightly, so that when the chambers D in the same, which are on the same horizontal plane and exactly correspond with caliber of the gun-barrel, are brought in the rear of said barrel they shall form a tightly-joined continuation of the same.

To the lower surface of the chambered bar C are secured on line a series of steel pins or studs, E, one being arranged immediately below the center of each cartridge-chamber D; and a short distance below this line of pins or studs E is arranged a transverse shaft, F, turning in boxes at the lower ends of projections or lugs cast on the lower part of the stock or frame B, and having a peculiar-formed grooved cam-hub, G, formed or secured on it between its boxes. The groove G' in this hub G extends around the periphery of the same, at right angles to the line of the shaft, one-half its circumference, and thence diagonally thereto or spirally the remaining half in such a manner and at such an angle as to cause it to terminate on line with the commencement of the right-angled portion, and the distance between the center of this end and the center of the said right-angled portion to correspond with the distance between the centers of the steel pins or studs E, and consequently the centers of the chambers D. The steel pins or studs E exactly fit in this groove G', and its right-angled portion being on the same vertical line as the center of the gun-barrel, it follows that during the passage or turning of this portion of the groove past any one of the pins or studs E that may be in it the chamber above said pin or stud will be immediately in the rear of and on line



with the bore of the gun-barrel, and that immediately upon the said pin or stud being disengaged therefrom the next pin or stud in the series will enter and be taken hold of by the diagonal portion of said groove G' to bring another cartridge-chamber next the barrel in line with it.

In order to more firmly hold the chambered bar C in place with the chambers opposite the gun-barrel, a rib, H, is formed or secured on the periphery of the grooved cam-hub G parallel with and next the straight portion of the groove G', which rib H, during its revolution and while the chambers D remain opposite the gun-barrel, enters corresponding grooves, S, in the lower surface of the chambered bar C, midway between the steel pins or studs E.

Around the socket-piece S of the pivot of the frame or stock B is placed loosely a metallic ring, I, to which is pivoted a friction-lever pawl, K, having a slot, s, formed in its long portion, through which passes the screw-shank of an adjustable sliding box or ear-piece, L, having the end of a pitman-rod, M, jointed to it. The opposite end of this pitman-rod M has a ring-strap attached to it, which strap passes around an eccentric, N, secured by a set-screw on the transverse shaft E, so that with every revolution of the shaft F a slight vibratory movement backward and forward will be given the slotted arm of the friction-pawl K, the forward movement causing the said friction-pawl to press against and take hold of the socket-piece S and turn the gun slightly on its pivot, and the backward movement causing the arm to come in contact with a pin, p, projecting upward from the ring immediately in the rear of the slotted arm of the friction-pawl and near the angular portion of the same, and to turn said ring and friction-pawl around the socket-piece the required distance to enable the pawl to take another hold on the next forward throw of the eccentric.

The eccentric N can be moved and secured on its shaft F, and with it the sliding box or ears L, with pitman-rod M attached, can be moved and secured in the slot s of the friction-pawl arm nearer to or farther from the pivot,

to regulate the movement of the gun at every forward throw of the eccentric.

When it is desired to operate the gun, the magazine or chambered bar C, with its chambers D charged with powder and ball, is inserted in the space in the stock or frame B, so as to bring the first of the series of pins or studs E against the hub G on line with the extreme forward end of the diagonal or spiral portion of the groove G', and a continuous motion is given the shaft F by any well-known means. A crank-shaft geared to the shaft F is preferred. This causes the chambers D in the chambered bar C to be successively brought opposite the gun-barrel through the action of spiral or diagonal portion of the groove G', and held in that position through the action of the straight portion of the same on said pins E, assistance in this last being rendered by the rib H entering the grooves in the bar until fired by means of the cam P on the transverse shaft F operating on the spring percussion-hammer Q. With every revolution of the transverse shaft F the gun will be moved on its pivot a slight distance through the agency of the eccentric N and its attachments, as before stated, to alter its aim, and when one magazine or chambered bar C has been fired a freshly-charged one may be inserted in the space in the stock or frame B to follow it, so as to continue the firing to any number of shots desired.

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

1. The combination of the rib H, flanged and grooved hub G G', and recesses and grooves S of the chambered bar C, substantially in the manner and for the purpose described.

2. Combining with the gun the ring I, friction-pawl K, with slotted arm, and the parts attached thereto, for giving a slight movement to the gun on its pivot at every revolution of the transverse shaft F, as herein fully set forth.

E. MAHER.

Witnesses:

EDWARD W. MAGENS,  
S. C. MAHER.