

July 21, 1936.

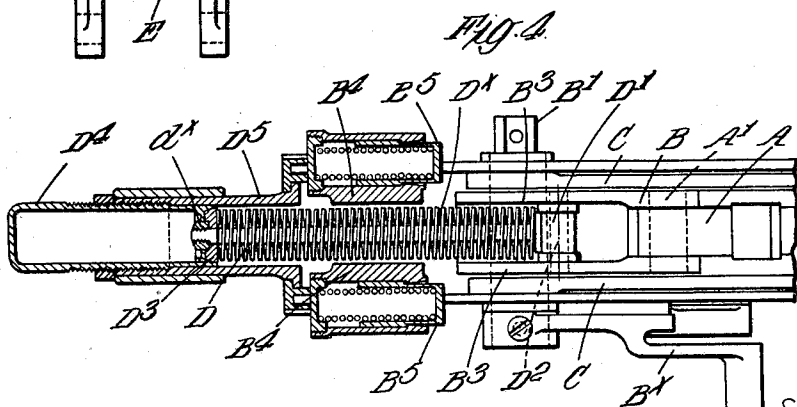
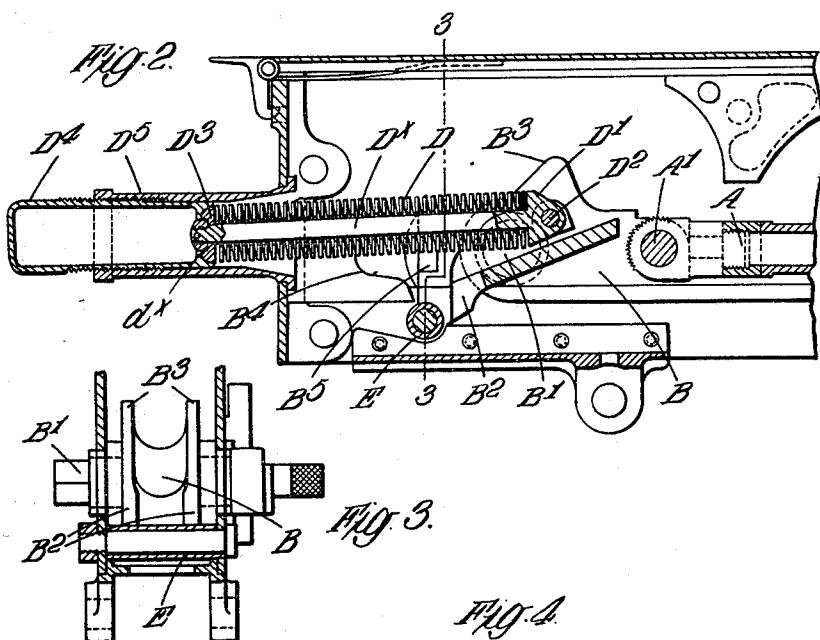
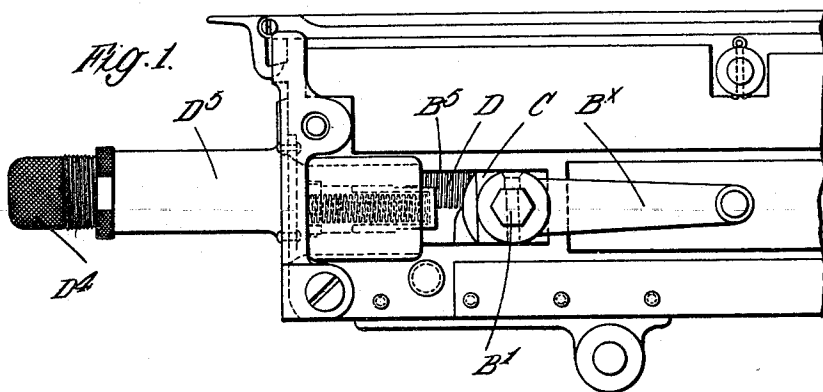
C. A. LARSSON ET AL

2,048,395

MACHINE GUN

Filed Jan. 2, 1934

2 Sheets-Sheet 1



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Fig. 5.

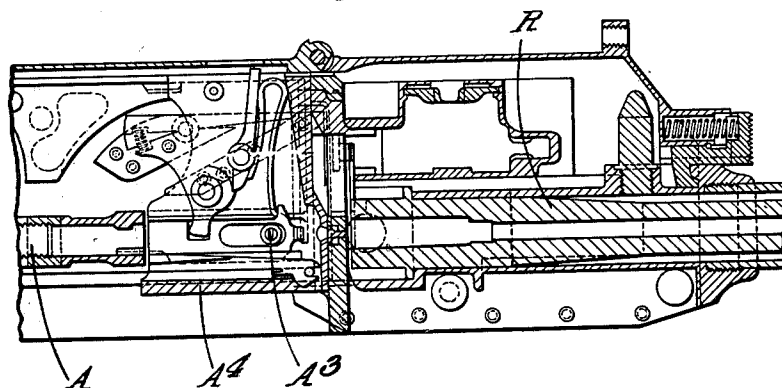
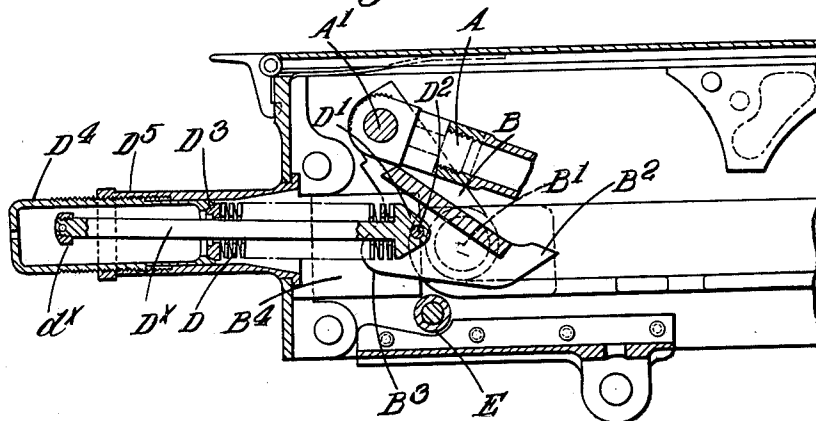


Fig. 6.



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UNITED STATES PATENT OFFICE

2,048,395

MACHINE GUN

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British company

Application January 2, 1934, Serial No. 704,835
In Great Britain February 6, 1933

2 Claims. (Cl. 89—3)

This invention relates to machine guns of the barrel recoiling type in which the lock is connected by a connecting rod to a spring controlled crank pivoted to recoil plates connected to the barrel.

The main object of the invention is to accelerate return of the recoiling parts to the firing position.

In order that the said invention may be clearly understood and readily carried into effect, the same will now be described more fully with reference to the accompanying drawings in which:—

Figure 1 is a side elevation of the rear portion of a gun provided with our improvements,

Figure 2 is a central vertical longitudinal section of Figure 1,

Figure 3 is a section taken approximately on the line 3, 3 of Figure 2 but with the recoil spring and its associated parts removed,

Figure 4 is a sectional plan of Figure 1.

Figure 5 is a sectional view showing the forward part of the gun, the rear part of which is shown in Figures 1 and 2, and—

Figure 6 is a view similar to Figure 2 but showing the parts in the maximum recoil position.

A (Figures 1 and 4) is the connecting rod which is pivoted at its front end to the lock A⁴ and at its rear end is pivoted at A' to the spring controlled crank B having a spindle B' pivoted in the recoil plates C, C connected to the barrel, all as is well understood, and D is the recoil spring for opposing the rearward movement of the recoiling parts and for returning them to the forward or firing position.

The crank is provided with a downwardly extended projection B² which co-operates with a roller E as the crank moves rearwardly on recoil so as to initiate the angular movement of the crank. The said projection B² is for practical purposes composed of two limbs arranged one on each side of, and at equal distances from, a vertical longitudinal plane containing the axis of the gun as shown in Figure 3 but it is theoretically a single projection and is herein regarded as such. The recoil spring D is in the form of a helical compression spring the front end of which bears against a bracket D' pivoted at D² to the crank B, the pivot D² and the bracket D' being situated above the level of the axis of the crank as shown in Figure 2. The rear end of the spring D bears against a washer D³ that is provided with a rear curved surface resting in a correspondingly shaped recess in the front end of a screw-threaded plug D⁴ carried by the handle block D⁵, rotation of this plug varying the initial compression

of the spring. The said bracket D' has a rod D^x projecting through the spring D to centralize the latter, the rear end of this rod passing through a hole in the washer D³ and being provided with a nut d^x.

The crank B also has cam faces B³, B³ above the level of the axis of the crank in the forward position for engaging stationary surfaces B⁴, B⁴ to limit the angular movement of the crank during recoil. Furthermore the recoil movement of the barrel is cushioned by means of spring plungers B⁵, B⁵ which are carried at the rear ends of the side plates of the gun casing and with which the rear faces of the aforesaid recoil plates C, C co-operate during the recoil movement of the barrel.

The spindle B' of the crank B may project through both side plates of the gun casing as shown in Figure 4 to enable the crank handle B^x to be connected to either of the projecting portions of the spindle.

In Figure 5, R is the gun barrel and A⁴ is the gun lock to which the rod A is pivotally attached at A³.

Upon recoil of the barrel and recoil plates, the pivot B¹ is carried rearwardly and the projection B² engage the fixed roller E whereupon the crank will rotate about the pivot B¹ and the spring D will be compressed. As the crank rotates, the pivot D² moves around the pivot B¹ until the two pivots are nearly in alignment with the spring and further recoil is then stopped by engagement of the surfaces B³ with the stationary surfaces B⁴. At maximum recoil therefore the spring will exert only a small turning moment on the crank and will thus act with increased pressure on the barrel to accelerate the return of the barrel to its forward position. Following maximum recoil the surfaces B³ will rebound from the surfaces B⁴ to assist return of the crank. A dead centre arrangement at the forward position is avoided by the part D¹ and pivot D² being above the pivot B¹.

What we claim and desire to secure by Letters Patent of the United States is:—

1. A machine gun having a recoiling barrel, a first pivot connected with the barrel so as to move with the latter in the recoiling movements of the same, a crank located on and movable around said first pivot, a recoiling lock pivotally connected to the crank, a second pivot mounted upon said crank and located with its axis above that of said first pivot, a member mounted loosely on said second pivot and extending rearwardly therefrom, a helical recoil spring for opposing the movement of the recoiling barrel and crank

and for returning them to the forward position, said spring having its forward end seated upon said member and such forward end being located above the axis of said first pivot, an element pivotally mounted with respect to the gun casing and formed to receive the rear end of said recoil spring, and means acting to limit recoil movement of the crank when the latter has reached a position in which the recoil spring is at maximum compression and when said second pivot has swung around with the crank until its axis is almost in

line with the axis of said first pivot with reference to the line of action of said spring.

2. A machine gun as claimed in claim 1, having faces on the crank above the level of said pivot in the forward position, and stationary members for engagement by the said faces at maximum recoil to limit recoil shortly before the first and second pivot would have reached a position of alignment with reference to the recoil spring.

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