April 18, 1939. C. G. PETTER 2,154,770

FIRING REGULATOR

Filed Oct. 20, 1937 4 Sheets-Sheet 1

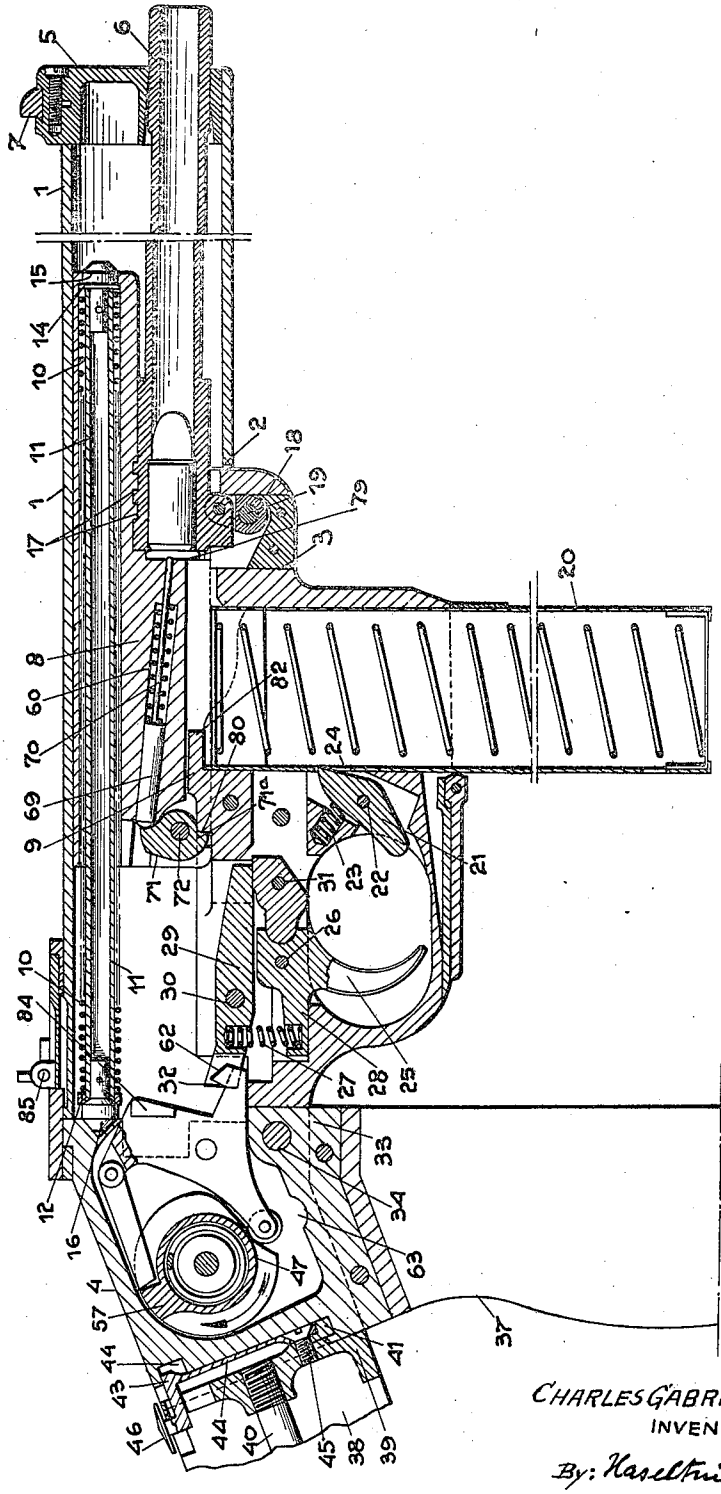


FIG. 1.

CHARLES GABRIEL PETTER
INVENTOR

By: Haselton Lake & Co.
ATTORNEYS

April 18, 1939. C. G. PETTER 2,154,770

FIRING REGULATOR

Filed Oct. 20, 1937 4 Sheets-Sheet 2

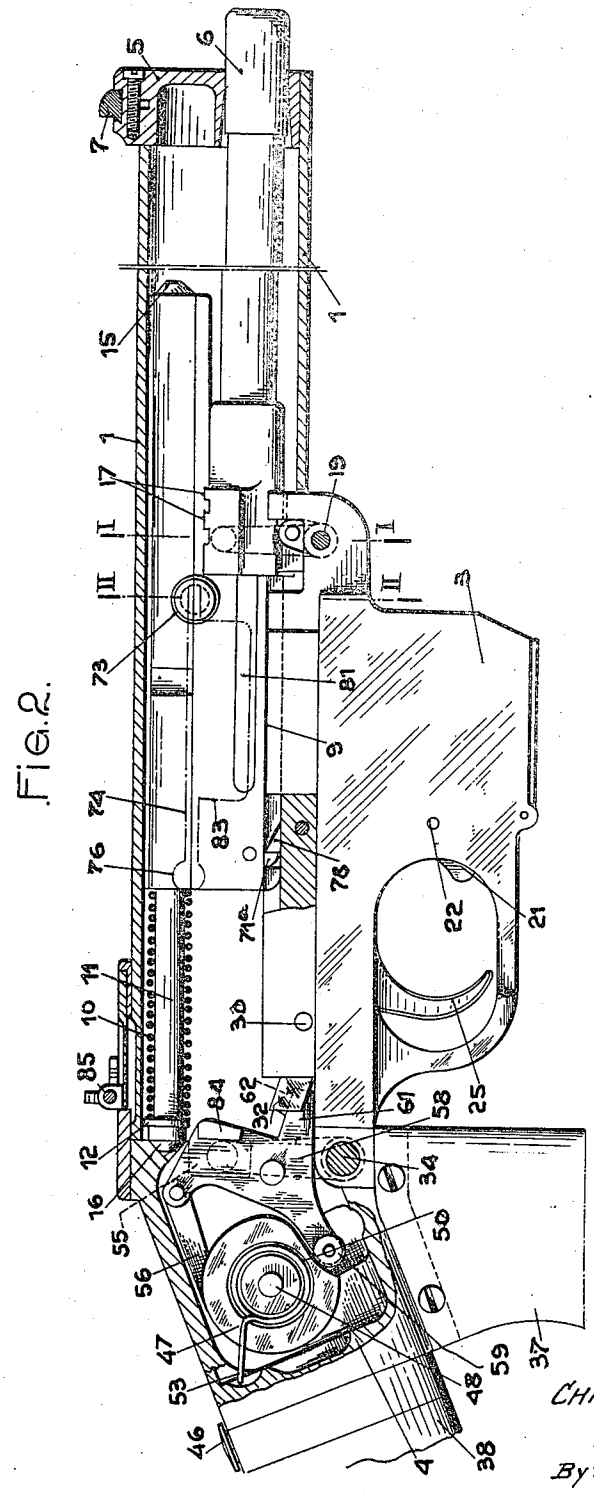


Fig. 2.

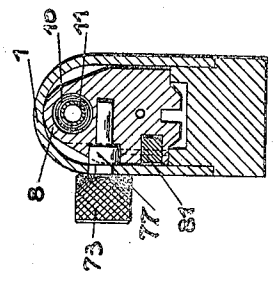


Fig. 5

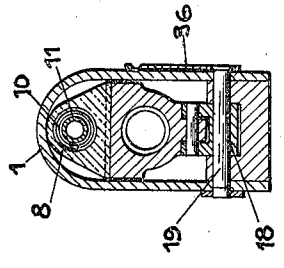


Fig. 4.

CHARLES GABRIEL PETTER
INVENTOR

By: Hazeltine Lake & Co.
ATTORNEYS.

April 18, 1939. C. G. PETTER 2,154,770

FIRING REGULATOR

Filed Oct. 20, 1937 4 Sheets-Sheet 3

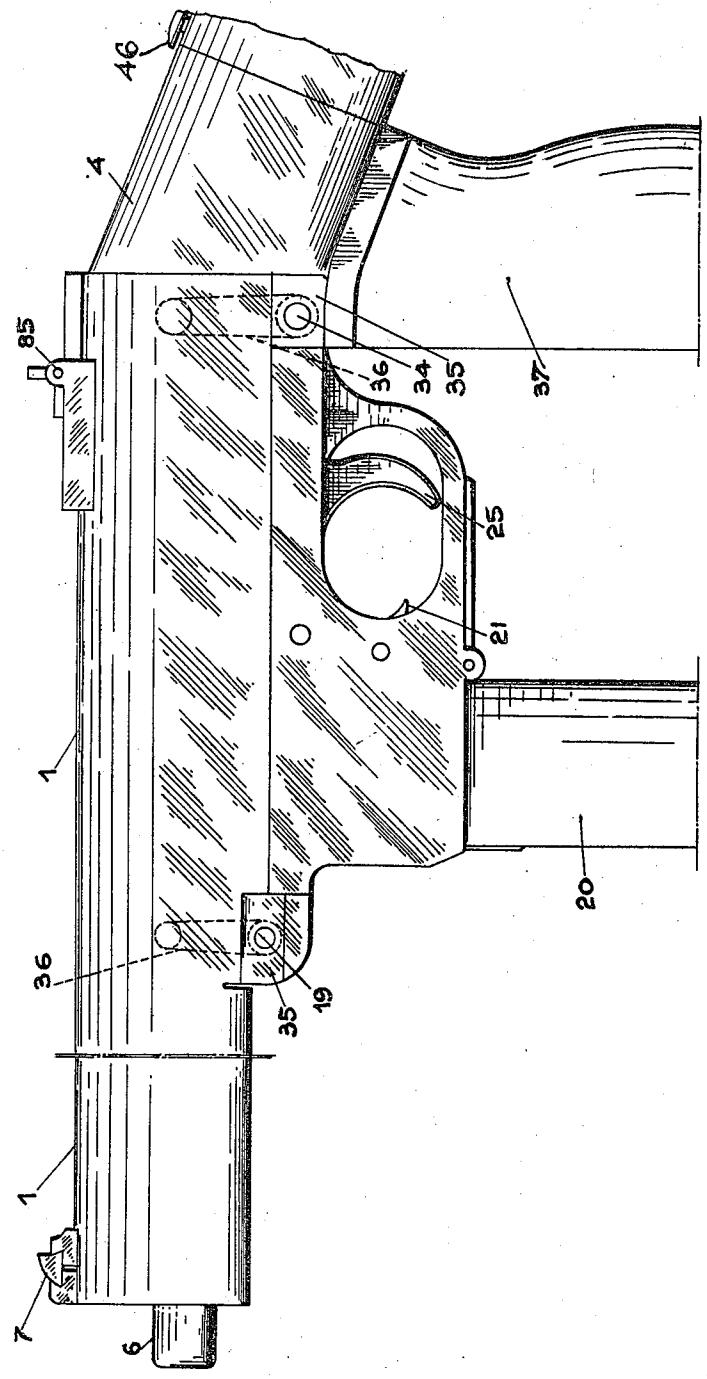


FIG. 3.

CHARLES GABRIEL PETTER
INVENTOR

By: Keseltine, Lake & Co.
ATTORNEYS

April 18, 1939. C. G. PETTER 2,154,770

FIRING REGULATOR

Filed Oct. 20, 1937 4 Sheets-Sheet 4

Fig.10.

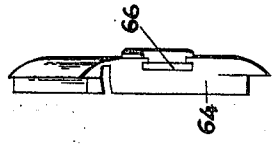


Fig.9.

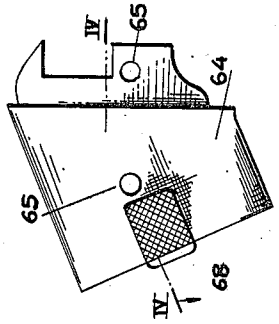
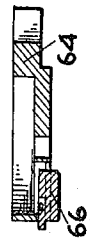


Fig.12.



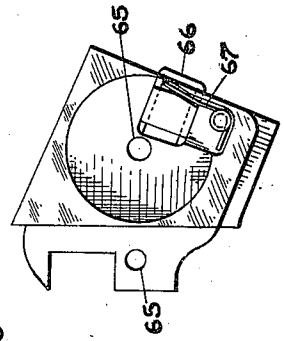


Fig.13.

Fig.8.

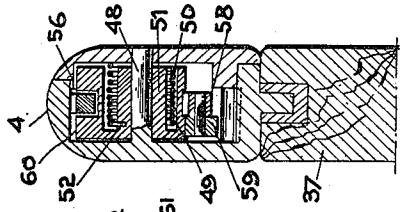


Fig.6.

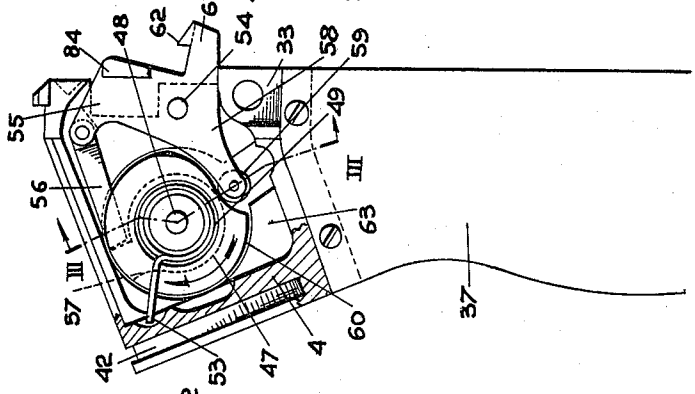


Fig.7.

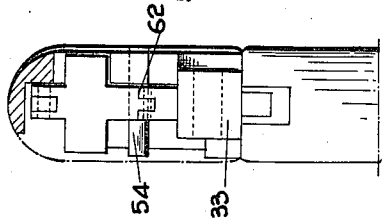
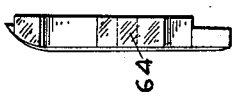


Fig.11.



CHARLES GABRIEL PETTER
INVENTOR

By: Haselton Lake & Co.
ATTORNEYS.

Patented Apr. 18, 1939

2,154,770

UNITED STATES PATENT OFFICE

2,154,770

FIRING REGULATOR

Charles Gabriel Petter, Paris, France

Application October 20, 1937, Serial No. 170,021
In France November 30, 1936

2 Claims. (Cl. 89—27)

The present invention relates to light automatic firearms permitting of volley firing and to quick-firing pistols. The object comprises improvements in firearms of this kind and in particular includes the purpose of lightening and simplifying the construction, of facilitating the dismounting and the upkeep and of improving the efficiency of same.

Said improvements are mainly characterized in that the rate moderator is combined with three levers or fingers which are secured together angularly and of which the first serves to impart to the moderator an angular impulse under the impact of the breech bolt, the second serves as a breech stop and the third serves to connect the whole arrangement to the moderator acting as a cam in order to determine the instant of release of the breech.

The accompanying drawings show by way of example only an embodiment of a quick-firing pistol according to the invention.

Figure 1 shows the pistol in partial elevation with axial section.

Figure 2 is a similar view to Figure 1 but with partial axial section and without a loader.

Figure 3 is a side elevation of the firearm.

Figure 4 is a transverse section through the line I—I of Figure 2.

Figure 5 is a transverse section through the line II—II of Figure 2.

Figure 6 is an elevation, with partial vertical section, of the butt carrier block, the removable cheek being removed.

Figure 7 is a corresponding end view of the same as seen from the front.

Figure 8 is a transverse section through the line III—III of Figure 6.

Figure 9 is a side elevation of the removable cheek of the butt carrier block.

Figure 10 is a corresponding end view of the same as seen from the rear.

Figure 11 is an end view of the same part as seen from the front.

Figure 12 is a section through the line IV—IV of Figure 9.

Figure 13 is an elevation of the removable cheek as seen from its inner face.

The quick-firing pistol comprises, a light framework formed by a sheet metal casing 1, provided with a rear opening 2 and adapted to accommodate the removable assembly 3. Said framework forms a breech casing and at its front portion it is closed by a part 5 perforated for the passage of the end of the barrel 6 which it guides. A sight 7 is fixed on the upper face of the part 6.

The breech 8 is guided rectilinearly in the breech casing 1 and on slideways or bearing surfaces 9 of the assembly 3. It is returned to its extreme forward position by the recuperator spring 10.

The spring 10 is mounted in known manner and permanently stretched on a rod 11 between a fixed flange 12 and a washer 14 which can slide along the rod when the breech recoils. When the breech 8 is in its forward position or when the rod 11 is withdrawn from the firearm with the spring 10, the washer 14 abuts against the flange of a separately-fixed head 15. At the opposite end another head 16 engages in a conical cavity of the butt carrier block 4 to centre the spring 10—rod 11 assembly.

When the spring 10 urges the breech forward again, it locks the same on the barrel 6, by the known arrangement of tongues and grooves 17, the barrel being anchored on the framework by means of a connecting rod 18 pivoted on a pin 19 which also has the function of fixing the front of the assembly 3 on the breech casing.

In the assembly 3 there is provided means for the pasage of the magazine 20 which is locked by a rocker 21 pivoted at 22 and returned by a spring 23. This lock acts by the engagement of its upper nose in an opening 24 of the case of the loader. It suffices to push back the lower nose of the rocker 21 to disengage the loader.

The trigger 25 is pivoted at 26 on the assembly 3 and returned by a spring 27 interposed between its heel 28 and a breech stop lever 29 pivoted at 30. When the trigger is pressed it acts on the sear 31 to lift the front end of the lever 29 and to move away the end 32 of this member.

A butt carrier block 4 engages in the rear opening of the breech casing 1 and its tenon 33 (Figure 7) penetrates into a corresponding notch of the assembly 3, a single pin 34 fixing both the rear part of the assembly 3 and the butt carrier block 4 on the breech casing 1. The pins 34 and 19 are threaded at their end to screw into the tapped hole of plates 35 provided on the breech casing 1 (Figure 3). They are held by resilient blades 36 of which the free end is provided with a nipple which engages in a conical groove provided in the side wall of the breech casing.

The butt carrier block 4 receives at its lower portion a handle 37 which is gripped by the hand of which one of the fingers acts on the trigger 25. Said handle optionally enables the firearm to be held and utilized in the manner of a pistol.

The butt 38 which enables the arm to be shouldered is provided with a front bracket 39

held by a threaded rod 40 and which adjusts itself by means of its tenon 41 in the slideways 42 of the block 3 (Figures 1 and 6) on which it is locked by the engagement of a nose 43 in a notch 44. The nose 43 is provided with a resilient blade 44 fixed at 45 and which is bent by pressure on a knob 46 when it is desired to release the nose 43 from the notch 44. The block 4 is recessed to contain a rate moderator of the oscillating mass type which is resiliently returned. As shown more particularly in Figures 6–8 the rate moderator is a mass 47 loosely mounted on a pin 48 of the block 4 and subjected to the action of a helical spring 49 arranged in a groove 50 coaxial with the hub 51, said spring being attached on the one hand at 52 to the mass 47 and on the other hand at 53 to the block 4. The spring 50 constantly tends to return the mass 47 in the direction of the arrow (Figures 1 and 6).

Three levers or fingers are constructed in one piece pivoted on an axle or pin 54 mounted on the block 3. The lever 55 is pivoted to a connecting rod 56 the free end of which is arranged in the path of a boss 57 of the mass 47. The lever 58 bears by means of a roller 59 on the periphery 60 of the mass shaped as shown in the drawings. The lever 61 has a nose 62 which engages in an axial groove of the breech stop lever 29. The cavity 63 of the block 4 is closed by a cheek 64 (Figures 9–13) perforated at 65 for the passage of the pins 48 and 54.

Said cheek is locked on the block 3 by a bolt 66, which is returned by a spring 67 (Figures 12 and 13) and of which the nose engages in a corresponding staple or groove of the block 4. Said bolt is released by manually actuating the knurled or checkered plate 68. The percussion mechanism of the firearm comprises a striker 69 guided in a perforation 60 of the breech 8 and subjected to the action of a spring 70 which bears against a dog 71 pivoted at 72 on the breech.

The operation of the arm is as follows:

After a charged magazine has been introduced into the firearm, the breech 8 is brought to the cocked position by pulling a knob 73 (Figure 5), the stem of which slides in a groove 74 of the breech casing 1. Said knob is freely engaged in a perforation of the breech when the latter is introduced into the casing 1 separate from the block 4. The knob 73 can be pushed home when it is placed opposite a hole 76 (Figure 2) terminating in a groove 74. In any other position it is retained on the breech by pressure of its flange 77 against the breech casing 1.

In the movement of the breech up to its cocked position, the dog 71 passes freely between the noses 32 of the lever 29 and in the axial groove of the nose 62. The notches 78 of the breech 8 pass over the noses 32 on which they hook when the knob 73 is released. The nose 62 is at this instant moved out of the notches 78 owing to the fact that the roller 49 bears on the point of the contour 60 which is closest to the axis of the moderator.

When the trigger is pressed the sear 31 lifts the front end of the lever 29 and moves away the noses 32. The breech is released and urged forward again by the recuperator spring.

In its forward travel:

Said breech extracts, by means of its face 79, the upper cartridge of the loader and introduces it into the firing chamber.

It locks itself on the barrel.

The nose 71a of the dog encounters the stop 80 and hits the striker 69 which fires the cartridge introduced into the firing chamber.

The recoil effect first of all acts both on the barrel and on the breech, then the connecting rods 18 act in known manner to break the connection between the barrel and the breech and the latter continues its recoil movement alone.

In this movement:

It carries along the case of the cartridge which has been fired. The extraction of the case is effected by an extractor 81 (Figure 5) of a known arrangement.

The case which has been carried along abuts against the ejector 82 and is projected through the opening 83 of the breech casing 1.

The breech strikes the boss 84 of the lever 55 which, by means of the connecting rod 56, imparts an angular impulse to the mass 47. From the beginning of said impulse the contour 60 acts to lift the nose 62 which engages in the notch 78 of the breech and holds it until the mass 47 which is retracted by the spring 50 has again taken up the angular position which it occupies in the drawings.

The movement of the breech, with the percussion of a cartridge at the end of each forward travel, continues so long as the trigger is pressed. The rate of firing in a volley is determined by the moderator.

A sight 85, of any appropriate arrangement, is fitted on to the breech casing.

What I claim as my invention and desire to secure by Letters Patent is:

1. In an automatic firearm with movable breech and a revolving moderator having a cam shaped periphery, in combination, a pivoting three arm lever interposed between the breech and the moderator, the arms of said lever constituting an upper arm, a rear lower arm and a fore lower arm, and said three arm lever being adapted to receive the percussion of the breech directly upon its upper arm, a link connected to the end of said upper arm for transmitting the percussion of the breech to the moderator, the rear lower arm of the lever bearing upon the cam-shaped periphery of the moderator and a nose at the end of the fore lower arm of said lever for momentarily locking the breech.

2. In an automatic firearm with movable breech and moderator having a cam shaped periphery, in combination, a three arm lever the arms of said lever constituting an upper arm, a rear lower arm and a fore lower arm, said lever being pivoted in a block closing the breech casing and interposed between the breech and the moderator also arranged in said block and adapted to receive the percussion of the breech directly upon its upper arm, a link connected to the end of the said upper arm for transmitting to the moderator the percussion of the breech, the rear lower arm of the lever bearing upon the cam-shaped periphery of the moderator and a nose at the end of the fore lower arm of the said lever for momentarily locking the breech.

CHARLES GABRIEL PETTER.