

A. T. DAWSON & G. T. BUCKHAM.
SEMI-AUTOMATIC AND OTHER QUICK FIRING GUN.
APPLICATION FILED MAR. 14, 1905.

1,015,147.

Patented Jan. 16, 1912.

3 SHEETS—SHEET 1.

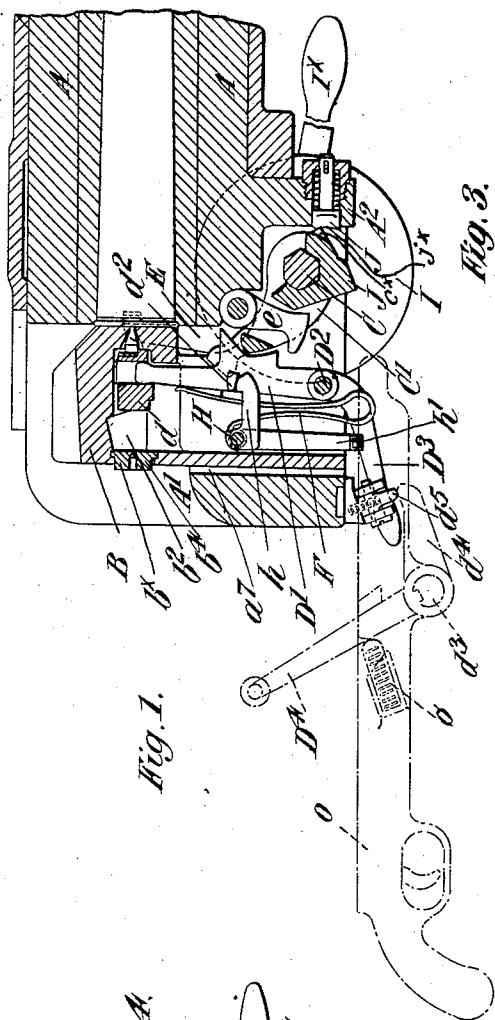


Fig. 1.

Fig. 3.

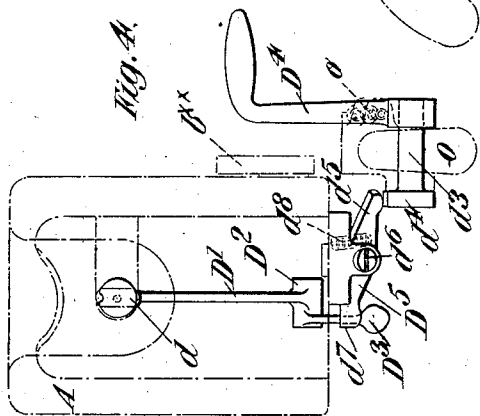
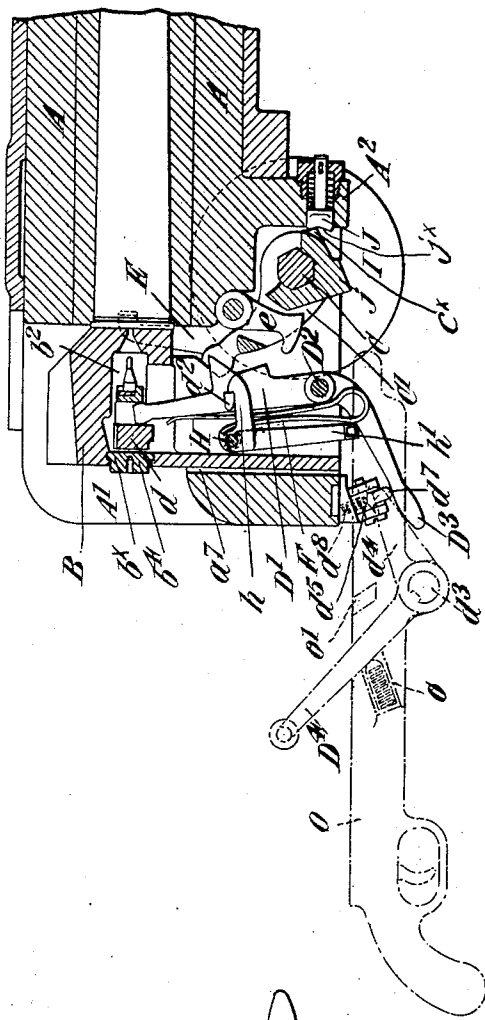


Fig. 4.

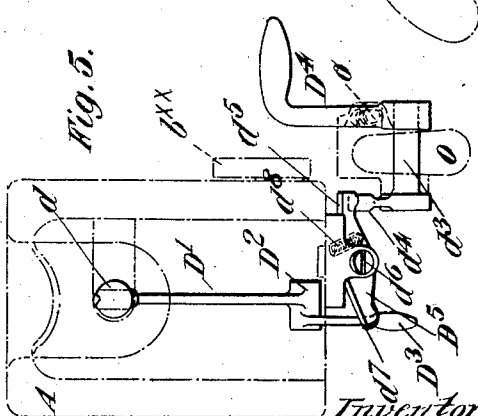


Fig. 5.

Witnesses:
James L. Morris, Jr.
Ed. Hessler

Inventors
Arthur T. Dawson
George T. Buckham
By James L. Morris, Jr.

A. T. DAWSON & G. T. BUCKHAM.
SEMI-AUTOMATIC AND OTHER QUICK FIRING GUN.
APPLICATION FILED MAR. 14, 1905.

1,015,147.

Patented Jan. 16, 1912.

3 SHEETS-SHEET 2.

Fig. 2.

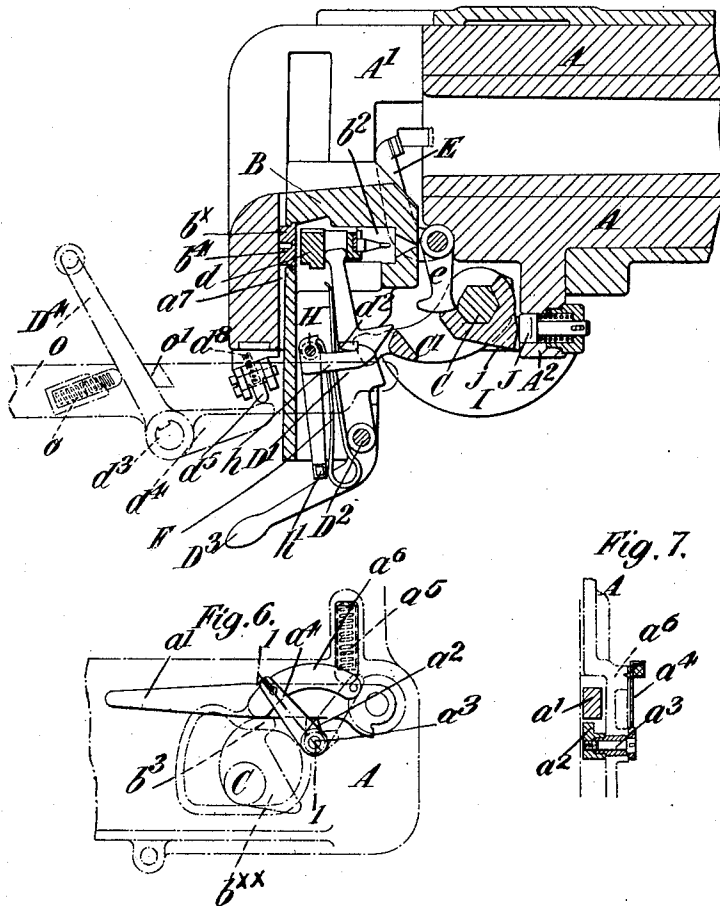
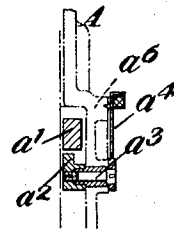


Fig. 7.



Witnesses:

James L. Norris, Jr.
C. S. Kessler

Inventors

Arthur T. Dawson
George T. Buckham

By James L. Norris

A. T. DAWSON & G. T. BUCKHAM.
SEMI-AUTOMATIC AND OTHER QUICK FIRING GUN.
APPLICATION FILED MAR. 14, 1905.

1,015,147.

Patented Jan. 16, 1912.

3 SHEETS—SHEET 3.

Fig. 5a

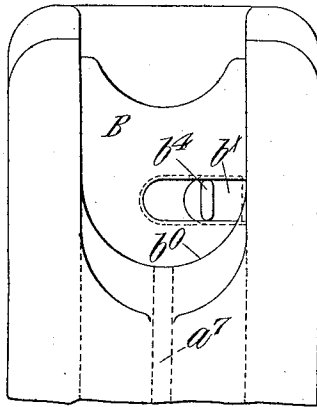


Fig. 5b

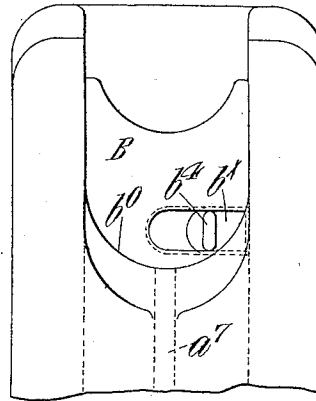


Fig. 5c

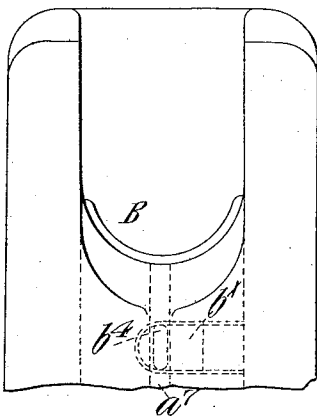
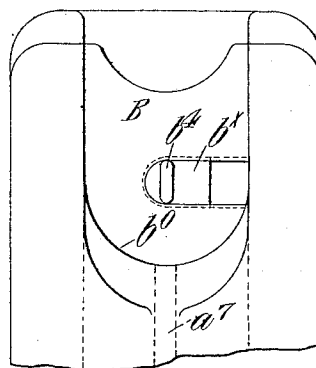


Fig. 5d



Witnesses:

J. B. Keifer

E. A. Rowe

Inventors.

Arthur T. Dawson.

George T. Buckham.

By *James L. Norris*

Atty.

UNITED STATES PATENT OFFICE.

ARTHUR TREVOR DAWSON AND GEORGE THOMAS BUCKHAM, OF WESTMINSTER, LONDON, ENGLAND, ASSIGNORS TO VICKERS SONS & MAXIM LIMITED, OF LONDON, ENGLAND.

SEMI-AUTOMATIC AND OTHER QUICK-FIRING GUN.

1,015,147.

Specification of Letters Patent.

Patented Jan. 16, 1912.

Application filed March 14, 1905. Serial No. 250,079.

To all whom it may concern:

Be it known that we, ARTHUR TREVOR DAWSON, lieutenant of the Royal Navy, director and superintendent of Ordnance Works, and GEORGE THOMAS BUCKHAM, engineer, both subjects of the King of Great Britain, residing at 32 Victoria street, Westminster, in the county of London, England, have invented certain new and useful Improvements in and Relating to Semi-Automatic and other Quick-Firing Guns, of which the following is a specification.

One part of our invention has reference to the firing mechanism and comprises a device which we term a re-cocking device for enabling the firing mechanism to be repeatedly re-cocked without requiring the firing position of the gunner to be unduly disturbed or the breech to be opened.

Another part of our invention relates to means whereby semi-automatic guns that are provided with a spring controlled pawl for actuating the cam of the breech mechanism are rendered convertible into quick firing guns and vice versa by adjusting the position of the said pawl relatively to the cam so that the said pawl can be set into and out of action for enabling the gun to work either as a semi-automatic gun or as an ordinary quick firing gun as desired. The cavity of the breech block in which the firing pin or striker works is closed in the well known manner by a sliding plate. This plate we provide with a projection to engage with and move in a corresponding groove in the breech chamber of the gun, the said projection being also adapted to engage with a curved surface on the breech end of the gun, in the event of the sliding plate not being completely closed, whereby it will be brought into alinement with the said groove so as to move therein during the opening and closing movements of the breech block.

In order that our said invention may be clearly understood and readily carried into effect we will describe the same more fully with reference to the accompanying drawings in which—

Figures 1, 2 and 3 are longitudinal sections of a semi-automatic gun with our re-cocking device applied thereto, these figures showing respectively the breech closed and the firing pin or striker in its fired position; the breech opened and the firing pin or

striker in its cocked position; and the breech closed and the firing pin or striker cocked by the movement of the re-cocking device. In the above figures the re-cocking device is illustrated in dotted lines it being situated on the right hand side of the gun which has been removed by reason of the plane of the sections coming on the longitudinal axis of the gun. Figs. 4 and 5 are end views of the re-cocking device in the position it occupies in Figs. 1 and 3 respectively. In these views the gun and trigger casing are shown in dotted lines for sake of clearness. Fig. 5^a is a rear elevation of a portion of the breech end of the gun showing the sliding plate and the projection thereon, the said plate being incompletely closed. Fig. 5^b shows the sliding plate being forced into alinement with the groove as the breech block descends. Fig. 5^c shows the breech block lowered and the sliding plate held in its correct position by the engagement of the projection with the groove, and in Fig. 5^a the breech block is shown raised and the sliding plate in its correct position. Fig. 6 is a side elevation and Fig. 7 a vertical section on the line 1 1, showing the means employed for converting the gun from the semi-automatic to the quick firing condition or vice versa.

In all these figures like letters of reference indicate similar parts.

A is the gun and B is the sliding breech block that works vertically in the breech chamber A', the said block and chamber being formed with vertical grooves and ribs to act as guiding supports, as is usual in this type of gun.

C is the shaft carrying the block actuating arm C' and A² is the bracket in which said shaft turns. The arm C' also operates to shift the cocking arm D' about its pivot D² as the breech opens, thereby cocking the firing pin or striker *d* which is detachably connected with the upper end of the arm D' and works in a recess *b*² that is closed by a sliding plate *b*^x. The said cocking arm also has a handle or prolongation D³ for actuating said arm and cocking the mechanism by hand.

E is the extractor.

F is the main spring.

h is the sear which is mounted on the axle H and adapted to engage with the projection *d*² on the cocking arm when the latter

is in its cocked position, said sear being tripped to release the cocking arm and firing pin by a lanyard arm or trigger h' .

All of the above parts are similar in construction and operation to those of the semi-automatic guns previously made.

Referring first more particularly to Figs. 1 to 5, the said re-cocking device comprises a lever or handle D^4 which is pivoted at d^3 to the trigger casing O carried by a non-recoiling part of the gun and which is arranged in a convenient position for the gunner at the shoulder piece to reach the same without unduly changing his firing position. This lever or handle (which we term the re-cocking lever or handle) has near its pivot a toe-piece d^4 which lies immediately beneath the end d^5 of an intermediate lever D^5 which is pivoted to the gun at d^6 and is adapted to move in a plane which is transverse to the longitudinal axis of the gun. The other end d^7 of this lever D^5 lies immediately above the rear end of the prolongation D^3 of the cocking or firing arm. The re-cocking handle D^4 is under the influence of a spring plunger o on the trigger casing O , which plunger tends to keep said hand lever in its normal position, that is to say pressed forwardly against a stop o' as represented in Figs. 1 and 2. The intermediate lever D^5 also has a spring plunger d^8 which tends to keep the end d^5 of said lever constantly pressed toward the toe piece d^4 and the end d^7 constantly pressed against the prolongation D^3 of the cocking arm D' . When it becomes necessary to re-cock the firing pin without opening the breech and without the gunner changing his firing position the said re-cocking handle D^4 is pulled toward the rear (as represented at Figs. 3 and 5) whereby the intermediate lever D^5 is so actuated that its end d^5 is raised by the toe piece d^4 and its end d^7 that lies above the prolongation D^3 is depressed, thus causing the said prolongation and the cocking or firing arm to move outward and the projection d^2 on the latter to reengage with the sear h and re-cock the firing pin or striker (Fig. 3). By these means therefore the said firing pin or striker can while the breech is closed, be repeatedly re-cocked, as for example in the case of a miss-fire.

In the semi-automatic working of the gun, the breech mechanism is operated by means of the spring controlled pawl a' and the cam b^{xx} , as is well understood, the said cam being mounted on the axle C . We arrange in combination with the pawl a' a toe-piece a^2 (Figs. 6 and 7) by the adjustment of which we can set the pawl either into or out of action relatively to the cam b^{xx} , that is to say so that by the movement of the gun on firing, the cam b^{xx} will be actuated for working the breech mechanism as in a semi-automatic gun, or so that the said cam will not

be actuated thereby when the mechanism is to be worked by hand, as in a quick firing gun. The said toe-piece is carried at the inner end of a horizontal axle a^3 and in a position to bear against the under side of the pawl, the outer end of the said axle being provided with a lever or handle a^4 for angularly displacing the said toe-piece. When the handle a^4 is turned into the position represented by the full lines in Fig. 6, the toe piece will lift the pawl into such a position that the hook-shaped portion b^3 of the cam will not be able to engage with the free end of said pawl on the recoil and return movement of the gun. When the said lever a^4 is turned into the position represented by the dotted lines in Fig. 6, the toe-piece a^2 will be displaced from its supporting position relatively to the pawl and as a consequence the latter will be depressed by its spring a^5 into its operative position relatively to the cam. The said lever a^4 is adapted to work over a segmental piece a^6 having letters or words for indicating the position to which said lever must be shifted to bring about either the quick firing or the semi-automatic working of the gun.

Before setting the mechanism for quick firing it is in some instances considered desirable to remove the spring case I from the shaft or axle C of the block actuating arm, and in providing as hereinabove described for the ready conversion of the mechanism from one to the other method of working we prefer to mount the handle or hand-lever I^x (Fig. 1) for actuating the mechanism on the same side of the gun as the spring case. By this arrangement the handle can be first taken from the shaft C of the block-actuating arm and then the spring-case removed. The handle can then be replaced on the said shaft and secured thereon in the position relatively to the other parts of the mechanism formerly occupied by the spring case.

The sliding plate b^x that serves to close the rear end of the cavity b^2 in which the firing pin or striker works is provided with a rearward projection b^4 . If prior to the opening of the breech the sliding plate b^x is inadvertently left in an incompletely closed position, the projection b^4 will, as the breech block descends in opening the breech, be acted upon by the curved surface b^o of the breech end of the gun in such a manner as to force said projection and the sliding plate that carries it, into their correct position where they will be held by the groove a' and remain in this position when the breech is closed unless deliberately moved on one side by hand.

J is a small spring buffer which is mounted in the bracket A^2 of the gun and bears against the toe or projection j of the block actuating arm C' , so that when the block is lowered to open the breech, this spring buffer

will be compressed and, after the complete opening has been effected, will react on the said breech actuating arm, thereby slightly raising the block. Without this raising of the block the fresh cartridge could not be pushed properly home into the charge chamber as the lower end or tail *e* of the extractor would be kept from moving outward by its contact with the adjacent face of the block, and consequently the upper part of the extractor could not be pushed forward with the cartridge. We also form a recess or groove *j** in the head of the spring buffer *J* which when the breech is closed and the mechanism locked and the arm *C'* has passed the dead center of its movement engages with an angular projection *c** on the boss of the block actuating arm *C'* thereby preventing the unintentional depression of the block.

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

1. In a quick firing gun, the combination with the firing pin cocking arm pivoted to the breech block, of a rotary hand lever independent of the cocking arm, and a single lever separately and independently pivoted to a recoiling part of the gun for transmitting the movement of the rotary hand lever to the cocking arm.

2. In a quick firing gun, the combination with the firing pin cocking arm pivoted to the breech block, of a rotary hand lever pivoted to a non-recoiling part of the gun, and a single lever pivoted to a recoiling part of the gun for transmitting the movement of the rotary hand lever to the cocking arm.

3. In a quick firing gun, the combination with the firing pin cocking arm pivoted to the breech block, of a rotary hand lever pivoted to a non-recoiling part of the gun, and a single lever pivoted to a recoiling part of the gun and interposed between the rotary hand lever and the cocking arm for transmitting the movement of the said rotary hand lever to the cocking arm.

4. In a quick firing gun, the combination with the firing pin cocking arm pivoted to the breech block, of an intermediate lever adapted to actuate said cocking arm and to move in a plane transverse to the axis of the gun, and a hand-lever adapted to actuate said intermediate lever substantially as and for the purpose specified.

5. In a quick firing gun, the combination with the firing pin cocking arm, of an intermediate lever mounted on a recoiling part of the gun and adapted to move in a plane transverse to the axis of the gun to actuate said cocking arm, and a hand-lever mounted on a non-recoiling part of the gun and adapted to actuate said intermediate lever substantially as and for the purpose specified.

6. In a quick firing gun the combination with the firing pin cocking arm, of an inter-

mediate lever mounted on a recoiling part of the gun and adapted to move in a plane transverse to the axis of the gun to actuate said cocking arm, and a hand-lever mounted on a non-recoiling part of the gun for actuating said intermediate lever, substantially as and for the purpose specified.

7. In a quick firing gun, the combination with the firing pin cocking arm, of an intermediate lever mounted on a recoiling part of the gun with its inner end above the outer end of the cocking arm and adapted to move in a plane transverse to the axis of the gun, a hand-lever mounted on a non-recoiling part of the gun, and a toe-piece on said hand-lever lying beneath the outer end of said intermediate lever for actuating the latter substantially as and for the purpose specified.

8. In a quick firing gun, the combination with the firing pin cocking arm, of a transverse intermediate lever mounted on a recoiling part of the gun with its inner end above the outer end of the cocking arm, a hand-lever mounted on the trigger casing of the gun, a toe-piece on said hand-lever lying beneath the outer end of said intermediate lever for actuating the latter, a stop on the trigger casing adjacent to said hand-lever, a spring plunger normally tending to keep said hand-lever pressed against said stop, and a spring plunger normally tending to keep the outer end of the intermediate lever pressed toward the toe-piece, substantially as and for the purpose specified.

9. In a quick-firing gun of the semi-automatic type, the combination with the cam of the spring controlled block actuating arm, of a pawl normally resting upon the said cam and adapted to coöperate therewith to actuate said arm at the recoil and return movement of the gun, and means for raising and supporting said pawl out of contact with said cam when desired for the purpose specified.

10. In a quick firing gun of the semi-automatic type the combination with the cam of the spring controlled block-actuating-arm of a pawl movable in a vertical plane parallel with the axis of the gun and adapted to coöperate with said cam to actuate said arm at the recoil and return movement of the gun, of a toe-piece situated beneath said pawl, and a lever or handle for angularly displacing said toe-piece to either retain the pawl raised or liberate it for the purpose specified.

11. In a quick firing gun of the semi-automatic type, the combination with the cam of the spring controlled block-actuating arm of a pawl movable in a vertical plane parallel with the axis of the gun and adapted to coöperate with said cam to actuate said arm at the recoil and return movement of the gun; of a toe-piece situated beneath

said pawl, a lever or handle for angularly displacing said toe-piece to either retain the pawl raised or liberate it, and a stationary segmental sign-plate in proximity to which
5 the outer end of the lever or handle works substantially as and for the purpose specified.

12. In a quick firing gun, the combination with the sliding breech block and the sliding
10 plate that closes the rear end of the cavity in which the firing pin works; of a rearward projection on said sliding plate adapted to

work in a groove in the rear wall of the breech chamber when the block is actuated, substantially as and for the purpose specified. 15

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses this first day of March 1905.

ARTHUR TREVOR DAWSON.

GEORGE THOMAS BUCKHAM.

Witnesses:

HENRY KING,

JOHN S. SHIELD.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."