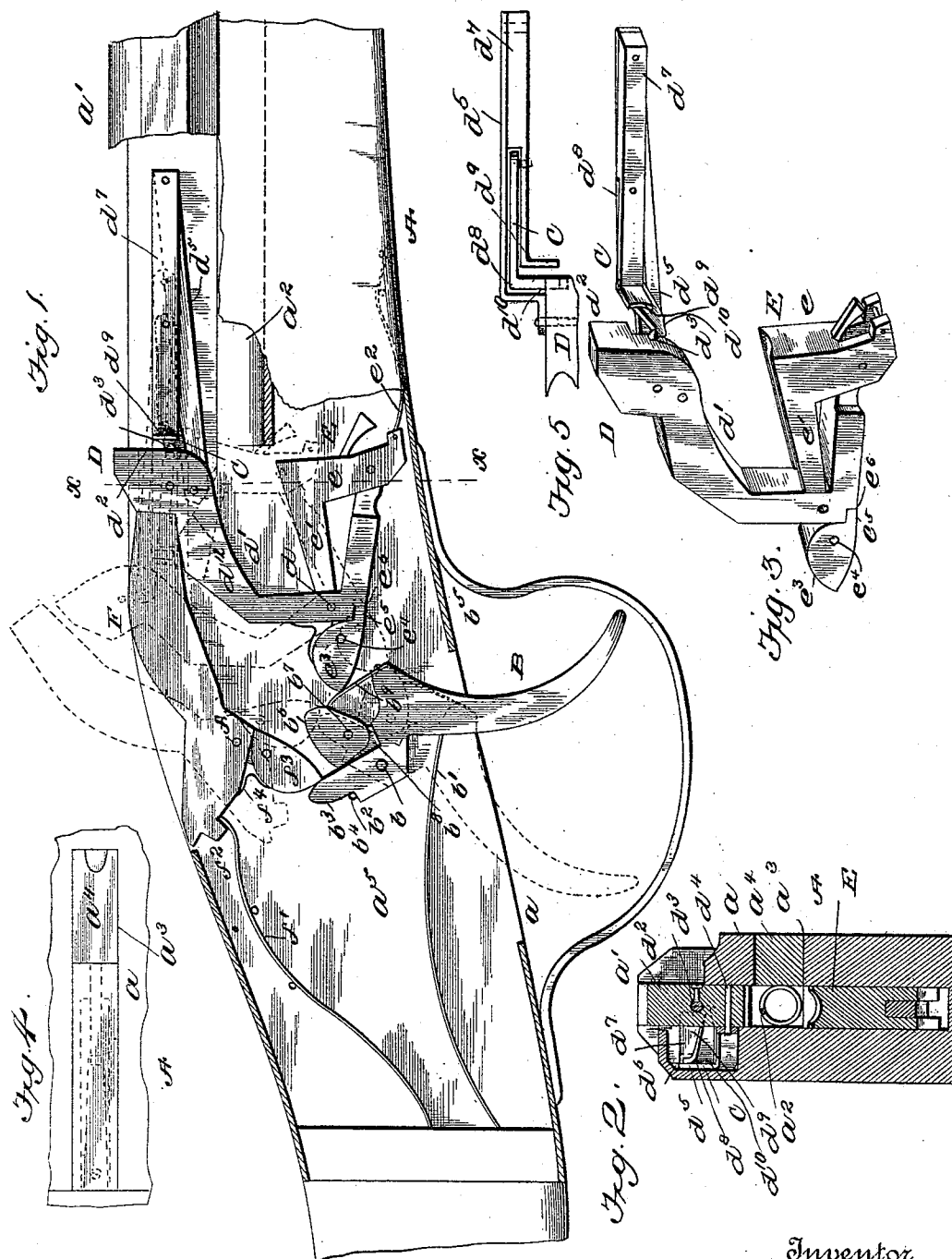


(No Model.)

A. G. DOUGHERTY.
SELF ACTING BREECH LOADING GUN.

No. 529,521.

Patented Nov. 20, 1894.



Witnesses

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UNITED STATES PATENT OFFICE.

ALBERT G. DOUGHERTY, OF CHAMBERSBURG, ASSIGNOR OF TWO-THIRDS
TO THOMAS B. BUSKIRK, OF PAOLI, INDIANA.

SELF-ACTING BREECH-LOADING GUN.

SPECIFICATION forming part of Letters Patent No. 529,521, dated November 20, 1894.

Application filed December 7, 1893. Serial No. 493,006. (No model.)

To all whom it may concern:

Be it known that I, ALBERT G. DOUGHERTY, a citizen of the United States, residing at Chambersburg, in the county of Orange and State of Indiana, have invented certain new and useful Improvements in Self-Acting Breech-Loading Rifles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention contemplates certain new and useful improvements in self-acting breech-loading rifles, and it has for its object the production of new and improved means whereby in one operation of the trigger the previously discharged shell or cartridge will be withdrawn, and a second shell will be brought into position and forced home, immediately after which the same will be exploded or discharged.

The invention consists, primarily, of a gun having a breech block operated by the trigger and designed to force the cartridge to its place immediately prior to the operation of the hammer, which latter fires the cartridge.

The invention further consists of a gun having a breech-block for properly positioning a cartridge and provided with a firing pin on a line with the fuse-cap of the cartridge, and a hammer designed to strike said pin and effect the discharge of the cartridge, said latter hammer being operated immediately subsequent to the first mentioned hammer.

The invention also comprises improved means for positioning the cartridges, and for withdrawing the shells thereof, and also for operating the hammer and breech-block whereby the rifle is rendered self-cocking.

The invention further comprises the details of construction, combination and arrangement of parts, substantially as hereinafter fully set forth and particularly pointed out in the claims.

In the accompanying drawings:—Figure 1 is a view in side elevation of a portion of a gun with parts removed, showing the internal mechanism, the latter being also indicated in dotted lines. Fig. 2 is a cross-sectional view on line $x-x$, Fig. 1. Fig. 3 is a detail perspective view showing the positioning ham-

mer, the ejector and cartridge carrier. Fig. 4 is a detail view. Fig. 5 is a plan view of the extractor.

Referring to the drawings A designates the gun proper, having the usual stock a , barrel a' and magazine tube a^2 for the reception of the cartridges which are inserted in an opening a^3 (see Fig. 4) in the side of the stock a , said opening being kept normally closed by a spring-held trap or cover a^4 . The stock is made hollow or formed with a chamber a^5 for the reception of the internal mechanism of my improved gun and access is had thereto by removing a section of the stock.

B is the trigger which is pivoted at b and held in a normally forward position by a spring b' , said trigger having an approximately upper right-angular portion b^2 provided with an extension forming a rigid cam b^3 . The forward movement of said trigger is limited by a post or stud b^4 in the stock against which a shoulder in rear of said cam normally rests. The trigger guard b^5 is of ordinary construction. An approximately triangular cam b^6 is pivoted at b^7 on a projecting portion b^8 of trigger B, and the flat or squared base of the same is held against the right angular portion b^2 of said trigger by a spring b^9 which holds said cam firmly in place.

D is a breech-block which is pivoted at d to the stock. This breech-block consists of a right-angular portion d' the vertical arm of which is curved or enlarged to form a head d^2 in which is located the firing pin d^3 . The extractor C is pivotally secured at d^4 to the head d^2 and consists of an arm d^5 which is extended forward into a recess d^6 in the barrel a' , and two arms d^7 , d^8 . The arm d^7 is pivoted to the arm d^5 at its forward end and has a right angular portion d^9 for fitting behind the flange of the shell. A portion of this arm is cut away to form a recess and in said recess and between arms d^5 and d^7 is pivoted the arm d^8 , which also has a right angular portion d^{10} for fitting against the flange of the shell, said right angular portion being designed to move against a curved shoulder d^{12} in the hollow portion of the stock. Hence the flange of the shell fitting between the right angular portions d^9 , d^{10} , of arms d^7 and d^8 permit the shell to be readily ex-

tracted. To an outer reduced portion of the lower horizontal arm d^{13} of the right-angular portion of breech-block D is pivoted a carrier E. The latter is designed to be operated by the elevation of the breech-block and consists of a vertical arm e and a horizontal portion e' concaved on its upper face, the outer end thereof resting normally against said right angular portion d' of the hammer and below the opening from the magazine, where it is held by a spring e^2 in an extension of the hollowed portion of the stock. A spring-held cam e^3 is pivoted at e^4 to the right angular portion d' of hammer D, said cam having a projection e^5 which normally rests against a shoulder e^6 of said right angular portion, being held in such position by said spring. A lug or projecting portion e^7 on the vertical arm e serves as a stop to prevent cartridges entering from the magazine when the carrier is elevated.

F is the hammer for exploding the cartridge and the same is pivoted at f and normally held against hammer D by a spring f' bearing against a shoulder f^2 of said hammer. To a projection of this hammer F is pivoted a cam f^3 having a flat or squared portion and a curved portion, said cam being engaged by a spring f^4 which holds the flat or squared portion firm against a corresponding surface of the hammer.

The operation is as follows:—The magazine is first filled by inserting the cartridges through opening a^3 , the usual spring in said magazine positioning the first cartridge on the concaved carrier E. The gun is then ready to fire. Upon pulling the trigger B rearward the rigid cam b^3 thereof engages the spring-held cam f^3 of the hammer F thereby elevating the latter. At the same time the cam b^6 engages the cam e^3 causing the raising of the breech block D. As the latter travels backward the horizontal arm d^{13} raises, thus elevating the carrier and bringing the concaved arm e' , carrying the cartridge, into position nearly flush with the chamber and ready for insertion of the cartridge thereinto, and at the same time extracting the empty shell of the cartridge previously exploded, the extracting of said shell being accomplished by the backward movement of the arms d^7 and d^8 . As the carrier and new cartridge are further elevated the flange of the shell is engaged by the right-angular ends d^9 and d^{10} of the arms of the extractor, which latter serves to force the cartridge into the chamber before the engagement of the breech-block. Continuing the pressure on the trigger the cams thereof move beyond engagement with the cams of the hammers, the breech-block D being first released, forcing the cartridge home, immediately after which the hammer F falls under the action of its spring, driving the firing-pin against the cap and thereby exploding the cartridge. The return movement of the trigger is permitted because of the formation of the various cams

of the two hammers which move on their pivots and thus allow the cams of the trigger to pass, the trigger assuming its normal position.

The advantages of my invention are apparent to those skilled in the art to which it appertains, and it will be specially observed that the magazine may be entirely emptied and all the cartridges fired without disturbing the aim of the person using the weapon.

I claim as my invention—

1. The herein-described improved self-acting breech-loading rifle, comprising a spring-pressed pivoted breech-block, a spring-pressed hammer, and a trigger having pivoted and rigid projections engaging respectively, said breech-block and hammer whereby they will both be operated by the movement of said trigger, substantially as set forth.

2. The herein-described improved self-acting breech loading rifle, comprising a pivoted breech-block, a carrier for positioning the cartridges pivotally connected to said breech block, and a trigger having a pivoted spring-pressed cam engaging said breech-block whereby the latter will be operated by the movement of the former, as set forth.

3. The herein-described improved self-acting breech-loading rifle, comprising a pivoted breech-block, a carrier pivotally connected to said breech-block, a hammer, and a trigger having pivoted and projecting portions engaging, respectively said breech-block and said hammer whereby the latter will be operated by the movement of said trigger, substantially as set forth.

4. The herein-described self-acting breech loading rifle, comprising a pivoted breech block, a carrier pivotally connected thereto, a longitudinally movable guide or holder designed to engage the cartridge and position the same, said guide or holder being pivotally connected to said breech-block which latter is designed to force the cartridge home in its operation, and an operating trigger, having a pivoted cam in engagement with said breech-block said guide or holder being moved longitudinally with the cartridge, substantially as set forth.

5. In a self-acting breech-loading rifle, a pivoted breech-block, a vertically movable carrier pivotally connected thereto, a longitudinally movable extractor connected to said breech-block, and a trigger for operating said breech-block, substantially as set forth.

6. In a self-acting breech-loading rifle, a pivoted breech-block, a vertically movable carrier pivotally connected thereto, an extractor pivotally connected to said breech-block and having two arms provided with overlapping flanged ends a narrow space or opening being left between said flanged ends to receive the rim of a cartridge shell, and an operating trigger, said breech-block being designed to force the cartridge in the chamber of the rifle, substantially as set forth.

7. In a self-acting breech-loading rifle, a pivoted breech-block having a lower right

angular portion, a spring-held cam pivoted on said right-angular portion and engaging a shoulder thereof, the trigger, and a spring-held cam pivoted on said trigger and engaging the cam on said right angular portion of the breech-block, whereby the latter is operated by said trigger, substantially as set forth.

8. In a self-acting breech-loading rifle, a pivoted breech-block having a lower right-angular portion and an upper enlarged portion, a spring-held carrier pivotally connected to said right-angular portion, a spring-held cam also pivoted on said right-angular portion, the trigger, and a spring-held cam pivoted to said trigger and designed to engage the cam of said right angular portion, whereby the breech-block and carrier may be operated by the trigger, as set forth.

9. In a self-acting breech-loading rifle, a pivoted breech-block having a lower right angular portion and an upper enlarged portion, an extractor pivotally connected to said enlarged portion and comprising two arms having flanged ends, a spring-held carrier pivotally connected to the right angular portion of said breech-block, a spring-held cam also pivoted to said right-angular portion, the trigger having a spring-held cam pivoted thereon and designed to engage the cam on the right angular portion of said breech-block, whereby the parts may be operated by said trigger, substantially as set forth.

10. In a self-acting breech-loading rifle, a pivoted breech-block having a spring-held cam pivoted on its lower portion, a hammer also having a spring-held cam pivoted thereto, and the trigger having cams for engaging said cams of the breech-block and hammer, where-

by said breech-block and hammer may be operated by the movement of the trigger, substantially as set forth.

11. In a self-acting breech-loading rifle, a pivoted breech-block having a lower right-angular portion, a spring-held carrier pivotally connected to said right-angular portion, a spring-held cam also pivoted to said right angular portion, a hammer having a spring-held cam pivoted thereon, a trigger having a rigid cam, and a spring-held cam pivoted to said trigger, said rigid cam and spring-held cam being designed to respectively engage the cams of the hammer and breech-block, whereby the parts may be operated by pulling the trigger.

12. The herein-described improvement in self-acting breech-loading rifles, comprising a pivoted breech-block having a lower right angular portion and an upper enlarged portion carrying the firing-pin, the extractor pivotally connected to said enlarged portion, the spring-held carrier pivotally connected to said right-angular portion, a spring-held cam also pivoted on said right-angular portion, the hammer, a spring-held cam pivoted thereon, a trigger having a rigid cam designed to engage the cam of said hammer, and a spring-held cam pivoted on said trigger and designed to engage the cam on said breech-block, whereby all the parts are operated by pulling the trigger, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ALBERT G. DOUGHERTY.

Witnesses:

LOIS H. BUSKIRK,
JOHN H. LINDLEY.