2 Sheets—Sheet 1.

C. E. & R. GREEN.

Breech-Loading Fire-Arm.

No. 208,085. **Patented Sept. 17, 1878.**

Fig: 1.

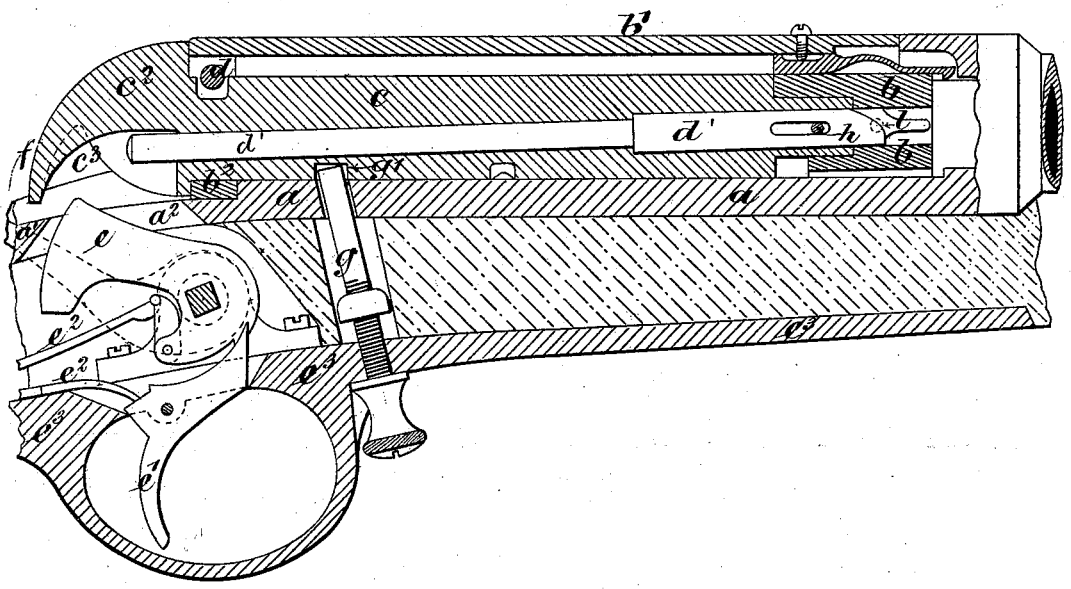

Fig: 2.

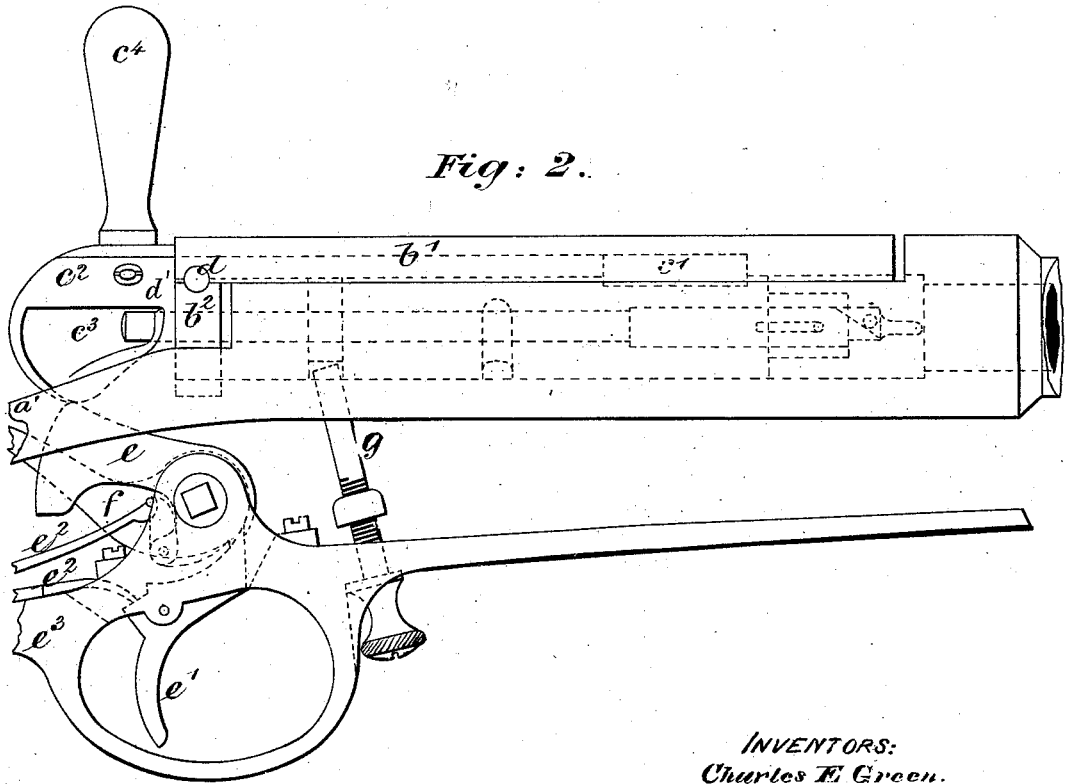

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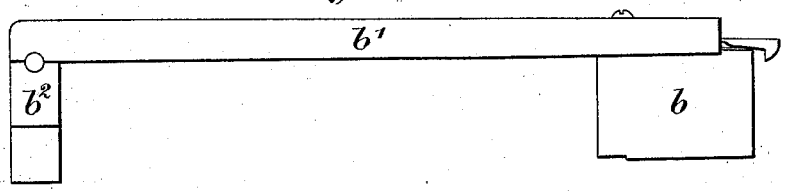
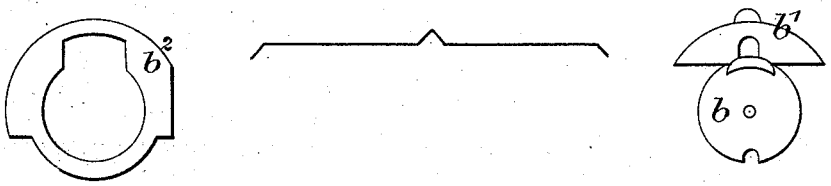
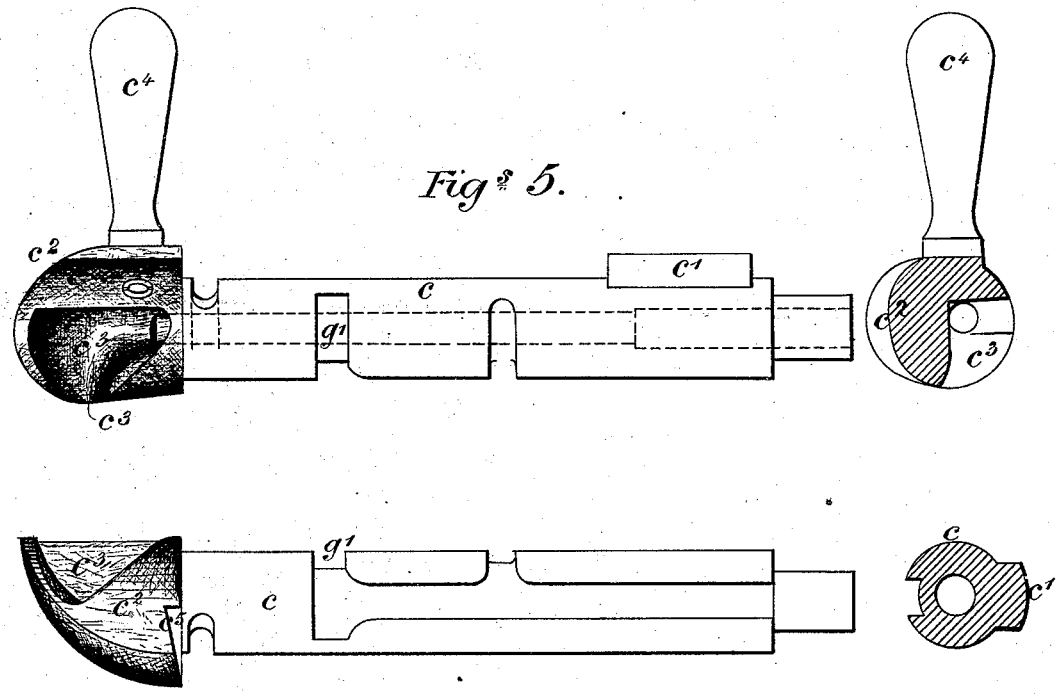
Fig. 3.



Figs. 4.



Figs. 5.



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UNITED STATES PATENT OFFICE.

CHARLES E. GREEN, OF 13 BLANDFORD STREET, AND ROBERT GREEN, OF LADBROOKE TERRACE, NOTTING HILL, ENGLAND.

IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. **208,085**, dated September 17, 1878; application filed May 29, 1878; patented in England, February 3, 1877.

To all whom it may concern:

Be it known that we, CHARLES EDMUND GREEN, of 13 Blandford street, and ROBERT GREEN, of Ladbrooke Terrace, Notting Hill, both in the county of Middlesex, England, have invented a new and useful Improvement in Breech-Loading Fire-Arms, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings.

Our improvement relates to that class of breech-loading fire-arms in which the breech is opened by the drawing back of a sliding bolt. Our object is to improve the means of drawing back the striking-pin contained in the bolt, and also to prevent the possibility of the cartridge being exploded by the bolt lever or handle being turned to its proper place after an attempt has been made to fire the gun before the said lever was properly turned home.

The improvement is shown in the drawings, hereunto annexed.

Figure 1 is a longitudinal section of the breech-action when closed ready for firing. The hammer, however, is at half-cock. Fig. 2 is a side view of the breech-action with the bolt turned into position ready to be drawn back, the striking-pin having been drawn back and the hammer set to half-cock by the act of turning the bolt.

In the figures, a is the breech end of the barrel, with a chamber, open at the top, formed in it to receive the bolt which is to close the breech end of the barrel. The bolt is, as heretofore, made in two parts. One part consists of a non-rotating plug-piece, b, which is to close the breech end of the barrel. This plug-piece has a cover, b^1, extending backward from it, to close over the top of the chamber in the breech-piece a. A side view and end views of the plug-piece and cover are shown at Figs. 3 and 4. At the rear end of the cover is formed a ring, b^2, concentric with the cylindrical plug b. The other part of the bolt is cylindrical, and is marked c. It passes through the ring b^2, and its forward end enters a circular recess in the plug b. The two parts are held together by a screw-pin, d, carried by the ring b^2 lying within a groove formed in the part c. The groove extends sufficiently around this part to allow of a quarter-turn, or thereabout, being given to it without turning the plug b. On the part c is a projecting lump, c^1, to enter a recess in the side of the chamber a to lock the bolt when it is closed in position for firing.

At the rear end of the part c is a head, c^2, to which is secured the lever-handle c^4, by which the bolt can be turned to lock or unlock it and to draw it backward or forward. In the head c^2 is a cavity, c^3, into which the head of the hammer passes to strike forward the striking-pin.

Various views of the bolt are shown at Fig. 5.

d' is the striking-pin, which passes through the part c, and also through the plug-piece b, so that when the bolt is struck forward its forward end may be caused to ignite a cap at the base of a cartridge in the ordinary manner.

e is the hammer of the lock. It strikes upward through a slot, a^2, in the tang a^1, which extends backward from the end of the chamber a.

The lock is formed of three parts only—the hammer e, the trigger e^1, and the bent spring e^2, which acts upon them both; and these parts are all carried by the plate e^3, on which is formed the trigger-guard. The axis of the hammer has formed through it, as shown, a square hole, through which is passed a corresponding spindle, and at one end of this spindle is a lever-handle, f, by which the hammer may be set back to full-cock when the gun is to be fired.

The cavity c^3 in the head c^2 of the locking-bolt is formed in such a manner that when a quarter-turn, or thereabout, has been given to the lever-handle c^4 of this bolt to shift it from its locked to its unlocked position, the hammer e is pressed downward by it until the sear-nose of the trigger has caught into the half-cock notch in the hammer. One side of the cavity is for this purpose inclined, as shown, while the other side is straight. When the bolt is turned to unlock it the incline acts on the head of the hammer and forces the hammer back until, when a quarter-turn, or thereabout, has been given to the bolt, the head of the hammer has been forced completely out of the cavity and the solid head c^2 comes above and bears upon it, as shown at Fig. 2. The bolt can then be drawn back freely, leaving the

hammer at half-cock. The bolt is prevented from being drawn too far back by a stop-pin, g, the end of which enters a groove, g', in the bolt. This pin can be screwed back, so as to be clear of the bolt, if it is desired to completely withdraw the bolt for cleaning or from any other cause.

As the lever-handle c^4 is turned upward to unlock the bolt, as before described, an incline, c^5, on the head c^2 comes against the rear end of the chamber a. The bolt is thereby withdrawn a short distance, as shown at Fig. 2, and the cartridge-case in the barrel is consequently drawn back by the extractor secured to the non-rotating plug at the end of the bolt, so that when the bolt is drawn back the cartridge-case, having been thus started, comes back freely with it, and is jerked out of the chamber in the ordinary manner. By means of the turning handle or lever c^4 and the incline acting against the rear of the breech-piece considerable force may be exerted to start an exploded case by the bodily backward movement of the locking-bolt for a short distance during the preliminary operation of opening the breech-piece or breech end of the barrel.

When a fresh cartridge has been inserted into the breech end of the barrel and the bolt has been again moved forward to close the breech, the gun cannot be fired unless the bolt has been turned into its locked position. If the bolt is only turned partly down and the trigger is pulled, the hammer will strike on the inclined side of the cavity in the head c^2, and will not cause the striking-pin to explode the cartridge; if afterward the bolt is turned completely into its locked position, the hammer, still resting on the inclined side of the cavity, will come quietly against the end of the striking-pin, but will simply press upon it, and will not drive it forward by a blow; consequently the cartridge will not be exploded, and no danger of accidents can arise from this cause.

It will be seen that, when the breech is closed and the locking-bolt turned into its locked position the head c^2 of the bolt covers over the slot a^2, through which the hammer of the lock passes, and thus prevents dirt getting to the lock. It will also be seen that the bolt for closing the breech and the lock of the gun can both readily be taken out for cleaning or repairs whenever needed.

In order that the striking-pin d' may be drawn back at the time when the bolt is turned from its locked to its unlocked position the striking-pin has a slot formed through it, through which a pin, h, carried by the part c of the bolt passes, so that when the part c is turned the striking-pin is turned with it. The forward end of the stem of the striking-pin is formed with a quick-threaded screw-thread or incline passing partly around it. When the bolt is turned to unlock it, and the striking-pin is turned with it, a pin, l, carried by the plug b of the bolt, acts upon the incline on the striker, and moves it back and holds it in its backward position until the breech is closed and properly locked. This again acts as a safeguard to prevent accidental explosions on closing the breech at a time when the hammer has previously been liberated by pulling the trigger.

Having thus described our invention, we would state that we claim—

The combination of the chambered breech-piece or rear end of the barrel, the two-part bolt, consisting of the non-rotating plug at its front end and the cylindrical turning part, the striking-pin working endwise in and turning with the cylindrical part of the bolt, and having the incline, or its equivalent, as specified, near its forward end, and the pin carried by the non-turning plug and acting on the striking-pin as it is turned, these members being constructed and operating substantially as hereinbefore set forth, for the purpose specified.

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