

(No Model.)

3 Sheets—Sheet 2.

C. A. YOUNG & S. H. BARTON.
EJECTING AND COCKING MECHANISM FOR BREAKDOWN GUNS.
No. 543,366.

Patented July 23, 1895.

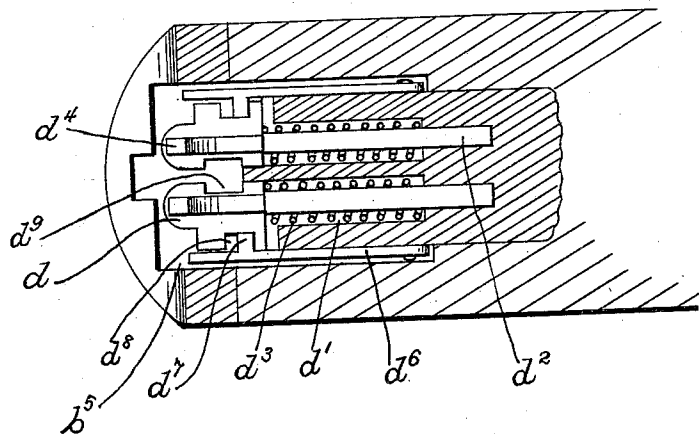


Fig. 3.

Fig. 4.

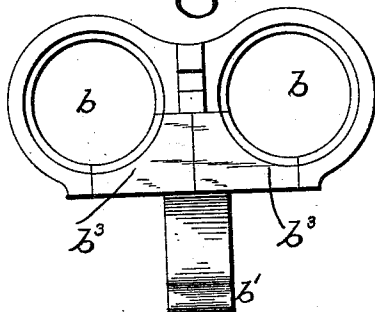
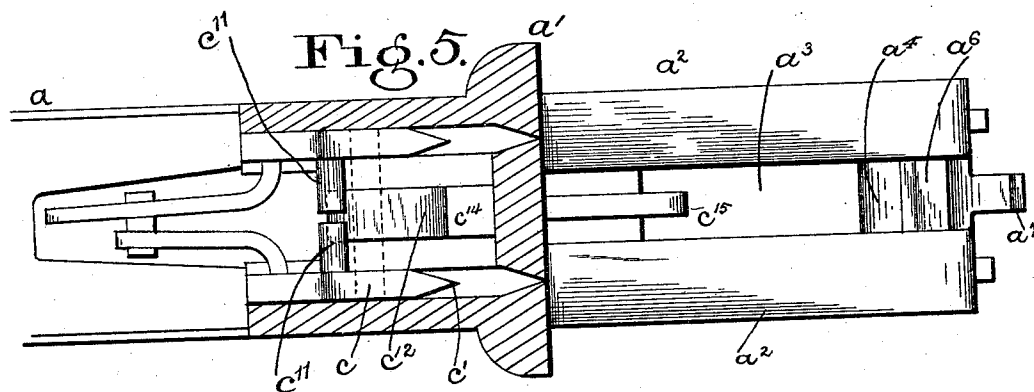


Fig. 5.



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(No Model.)

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C. A. YOUNG & S. H. BARTON.

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Fig. 6.

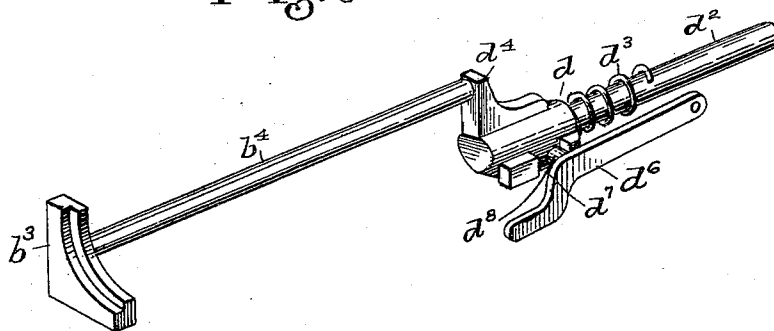
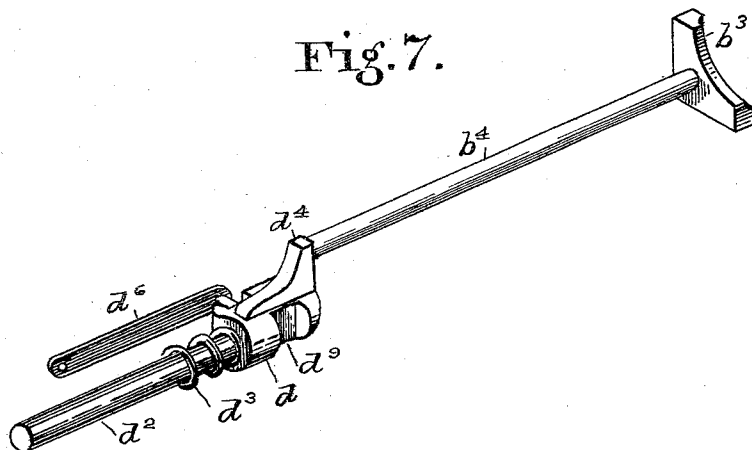


Fig. 7.



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CHARLES A. YOUNG AND SILAS H. BARTON, OF ENON, OHIO.

EJECTING AND COCKING MECHANISM FOR BREAKDOWN GUNS.

SPECIFICATION forming part of Letters Patent No. 543,366, dated July 23, 1895.

Application filed October 12, 1894. Serial No. 525,743. (No model.)

To all whom it may concern:

Be it known that we, CHARLES A. YOUNG and SILAS H. BARTON, citizens of the United States, residing at Enon, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Guns, of which the following is a specification.

Our invention relates to improvements in guns, and it especially relates to self-cocking breech-loading shot-guns.

The object of our invention is to provide a simple and effective firing mechanism for guns, together with means for cocking or setting the same when the gun is opened to remove the shells.

A further object of our invention is to provide a novel and effective means for ejecting the shell in case the cartridge has been fired.

A further object of our invention is to simplify the construction of various parts of the gun, so as to cheapen the construction and at the same time increase the effectiveness thereof.

We attain these objects by the constructions shown in the accompanying drawings, in which—

Figure 1 is a vertical longitudinal section with parts in elevation. Fig. 2 is a similar view taken on a different plane and with some of the parts in different positions. Fig. 3 is a horizontal section of the fore-end, showing the ejector-plungers and their controlling devices. Fig. 4 is a rear elevation of the main barrel or breech. Fig. 5 is a horizontal section of the breech-block, showing the firing mechanism. Fig. 6 is a perspective view of one of the ejecting devices. Fig. 7 is a similar view shown from a different point of observation.

Like parts are represented by similar letters of reference throughout the several views.

In the accompanying drawings, a represents the stock and b b the barrels. The stock a is provided in the usual manner with a breech-block a' , having the forwardly-projecting extension a^2 , to which the barrels b are hinged in the usual manner—that is to say, by means of a projecting lug b' , formed on the bottom of the barrels and adapted to project into a slotted opening a^3 , formed in the extension a^2 . The hinge proper of the barrels is formed at a^4 , at or near the front end of the extension

a^2 , the lug b' on the barrels being constructed to conform to the bearing a^4 , on which it is adapted to turn, the fore-end b^2 being fitted to the said extension and connected to the barrel to complete the hinge in the usual manner.

c c are the hammers, each of which is formed integral with a firing-pin c' , said hammers being each preferably constructed on the end of a rod or stem c^2 , which is shouldered down at its forward end to form a reduced portion c^3 , which extends entirely through the extension a^2 of the breech-block. The stem c^2 has fitted thereon a sleeve c^4 and a collar c^5 . The sleeve c^4 is slotted at its forward end at c^6 to form a guide for the hammer proper, and between the end of the sleeve c^4 and the collar c^5 is a spring c^7 , which serves as the mainspring of the firing-piece. The sleeve c^4 fits loosely on the stem c^2 . The collar c^5 is secured rigidly thereto, and when thus mounted the stem, together with the sleeve, collar, and spring, are inserted into the breech-block, which is bored out to form a chamber c^8 to receive the same. The sleeve c^4 is further provided with a downwardly-projecting lug c^9 , and is secured in position in the chamber c^8 by a retaining-screw c^{10} , so that as the hammer is moved backwardly the stem will slide through the sleeve c^4 and the spring c^7 be pressed between the end of said stem and the collar c^5 . The extension c^3 on the stem, as before stated, extends entirely through the extension a^2 of the breech-block, said extension being drilled out for this purpose. It will be understood that two of these hammers are employed, and that they are arranged in the breech-block and the extension a^2 thereof on each side of the slotted opening a^3 , into which the lug b' of the barrels is extended.

To provide for setting or cocking the hammers as the gun is opened we construct each of said hammers with a laterally-extending lug c^{11} , which lugs project inwardly and in line with the vertical arm c^{12} of a bell-crank lever pivoted at c^{13} . The other arm of this bell-crank lever is formed in the nature of a sleeve c^{14} , which is bored out to receive a sliding extension c^{15} , which is normally pressed outward by a spring c^{16} , arranged within said sleeve, a stop-pin c^{17} , operating in a slotted opening c^{18} in the side of said arm, forming

a guide and stop for said sliding extended portion, which is adapted with the main part of said bell-crank lever to form a telescoping arm. The outer end of the arm c^{15} is adapted to contact with the lug b' of the barrels b , and as the barrels are turned on their hinge the said lug elevates the arm c^{15} , thus carrying the arm c^{12} backwardly into contact with the laterally-extending lugs c^{11} , and thus forcing the hammers back so as to cock the same. Each of the hammers, or the stem thereof, is provided with a notch c^{19} , into which the hook-shaped end of a sear c^{20} is adapted to engage, said sear being preferably formed integral with the trigger c^{21} .

The barrels b are provided at the breech with ejector-slides b^3 , having forwardly-extending stems b^4 in the usual manner, the ejector-slides for the different barrels being independent and having independent stems b^4 . Arranged below the barrels and in that portion of the gun known as the "fore-end" are placed two plungers d . (See Figs. 1 and 3.) These plungers d fit in suitable bearings in the fore-end, which are drilled out to form chambers d' to receive the same, and each of the plungers is provided with a forwardly-extending stem d^3 , which projects through said chamber d' and into a suitable bearing which is extended beyond said chamber d' . Around this stem d^3 and between the end of the chamber d' and the plunger d is a spring d^5 , which, under certain conditions, forces said plunger rapidly backward, as will hereinafter more fully appear. Each of the plungers d is further provided with an upwardly-projecting spur d^4 , which stands, in its normal position, immediately in line with and at the end of one of the stems b^4 of one of the ejector-slides—that is to say, one of the plungers, through the medium of its spur d^4 , engages with one of the ejector-slides.

Now it will be seen from the above description, with the parts as described, each time the gun is opened by turning the barrels on their hinged portion the springs d^5 will force the plungers d outwardly, carrying with them the ejector-slides b^3 , the plungers being forced back to their normal positions, so as to compress the springs in the usual manner by the ejector-slides contacting with the breech-block when the gun is closed. To provide, however, for operating the ejector-springs and their plungers only at such times as the barrel to which it belongs has been fired, so as to expel only the empty shell, we provide for each of the ejector-plungers a trip-lever d^6 . These trip-levers d^6 are pivoted at the sides of the metal portion of the fore-end, in which the ejector springs and plungers are inclosed, and each of said trip-levers is provided with a laterally-extended lug d^7 , adapted to engage in a notch d^8 , formed in the projection d^5 on said plungers. The notches d^8 , in which the lugs d^7 are adapted to engage, are made larger than said lugs to permit the plungers a limited

end movement before engaging said lugs, for the purpose hereinafter more fully explained. It will be seen, however, that by means of the trip-levers d^6 the plungers are retained in their normal positions, except as said trip-levers are moved, so as to disengage the lugs d^7 from the notches d^8 . This is accomplished as follows: The fore-end b^2 is provided on that portion which engages the extension a^2 with slotted openings b^5 , into which the ends of the trip-levers d^6 are extended, and into which the reduced portion c^3 of the hammer-stem c^2 is also adapted to extend when the hammers have been released, the said hammer-stem extensions being adapted to project under the trip-levers d^6 . Now, assuming that one or both cartridges have been fired, the hammer-stem extensions are projected forward into the slotted openings b^5 under the trip-levers d^6 . The gun being now opened by turning the barrels on their hinged connection, the hammer will be, through the agency of the bell-crank cocking-lever, moved backward. At the same time the trip-levers d^6 will, by the movement of the gun, be carried downwardly, so as to contact with the ends of said hammer-stem extensions, so that just before the hammer reaches its cocked position the trip-levers d^6 will be moved upwardly by the projecting end of the hammer extensions, so as to release the ejector-plungers, which will operate the ejector-slides and forcibly eject the shell that has been fired. If either barrel has not been fired the hammer remains in a cocked position, in which case the hammer-stem extension stands flush with the forward end of the breech-block extension and does not contact with its trip-lever d^6 . Hence the plunger cannot operate to eject the shell. After the shell has been ejected the parts are returned to their normal positions in the manner before described, the trip-levers d^6 being preferably provided with springs d^{10} , to cause them to re-engage in the plungers when returned to their normal positions.

To provide for positively starting the shell independent of the action of the ejector-springs, we construct the extension a^2 with a hook-shaped lug a^7 , which projects upwardly, so as to fit between the plungers d and engage in a recess d^9 in each of said plungers. This hook-shaped extension a^7 is so formed that as the barrels are turned so as to open the same the plungers are moved positively by the action of said projection, so as to start the shell in both barrels and move them a limited distance until said plungers contact with the trip-levers, this limited movement being permitted by the notches or recesses in the plunger projections, as before described. It will be understood that by this construction the shells in both barrels are started positively every time the gun is opened, so that the ends of said shells are carried slightly beyond the breech of the gun in a position to be withdrawn, if desired. If either one or both of

said shells have been fired, but not otherwise, it will be further acted upon by the ejector-spring and discharged from the gun.

It will be seen from the above description that an extremely simple and effective firing mechanism is provided, the construction being also of such a nature that when fired the shells will be positively ejected from the barrels.

By having the cocking-lever in two parts, adapted to telescope, as described, we are enabled to put the parts of the gun together in either position of the hammers, whether cocked or not, the sliding portion of said cocking-lever being adapted to move back out of the way to permit the entrance of the lug.

It is obvious that the ejector mechanism herein described could be used with any other form of firing mechanism, providing a suitable extension is formed on the hammers or other moving parts to operate the tripping mechanism of the ejector-plungers, in order that the ejector-plungers should be operated only after the hammers or firing mechanism has been operated.

Having thus described our invention, we claim—

1. In a gun, a hinged barrel, a hammer, a sear for holding said hammer, and a spring for operating the same, a pivoted cocking lever independent of said hammer but adapted to engage therewith, said cocking lever being formed in two parts, one adapted to telescope in the other as described, the telescoping part being projected so as to engage with said hinged barrel, substantially as specified.

2. The combination with the hinged barrels having an extended lug thereon, spring-actuated hammers for said barrels, and means for holding said hammers when the springs are compressed, laterally-extending projec-

tions on each of said hammers, and a pivoted lever between said hammers adapted to engage said projections, said lever being provided with a spring-pressed telescoping arm to engage said lug, substantially as specified.

3. The combination with a hammer formed integral with a firing pin and extended stem as described, a sleeve on said stem provided with a slotted opening to receive and guide said hammer, a collar secured to said stem, and a spring between said sleeve and collar, and means, substantially as described, for holding said sleeve as the spring is compressed, substantially as specified.

4. In a gun, a hammer formed integral with a firing pin and extended stem as described, a sleeve on said stem adapted to guide said hammer, and a collar secured to said stem, a spring surrounding said stem and between said sleeve and collar, a laterally extending projection on said hammer, and a pivoted lever adapted to engage said projection, said lever being extended so as to engage the hinged barrel of said gun, substantially as specified.

5. In a gun, a hinged barrel having a projecting lug, a pivoted lever formed in two parts adapted to telescope as described, a hammer formed integral with a firing pin, and a projecting stem having a spring thereon, a sear for engaging said hammer, said pivoted lever being adapted to engage with said hammer when moved by said hinged barrel, substantially as specified.

In testimony whereof we have hereunto set our hands this 8th day of October, A. D. 1894.

CHARLES A. YOUNG.
SILAS H. BARTON.

Witnesses:

OLIVER H. MILLER,
CHAS. F. WELCH.