

(No Model.)

3 Sheets—Sheet 1.

D. KIRKWOOD.
Breech Loading Fire Arm.

No. 240,147.

Patented April 12, 1881.

Fig. 1

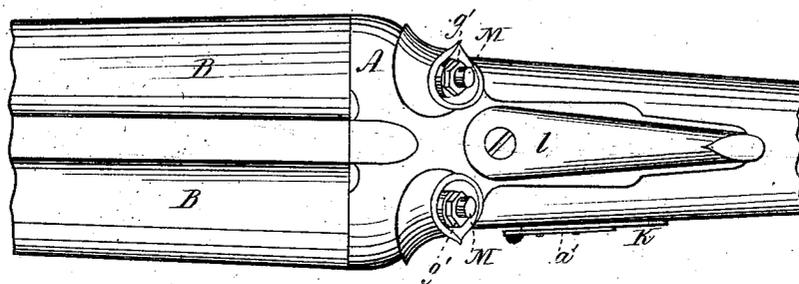


Fig. 2

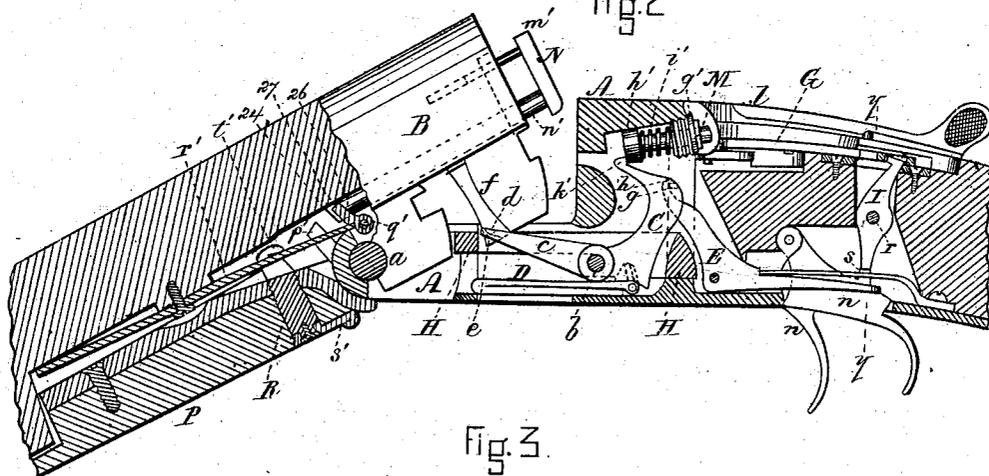
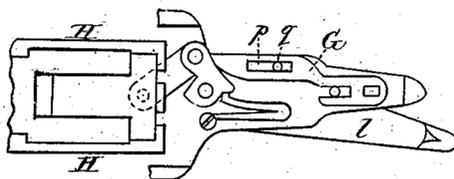


Fig. 3



WITNESSES

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David Kirkwood
per R. S. Fitchmacher
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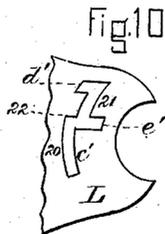
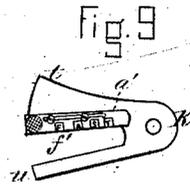
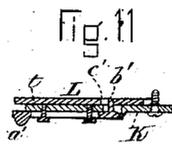
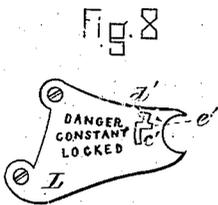
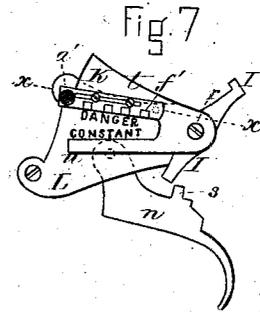
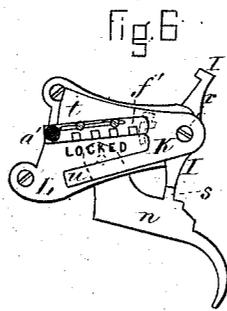
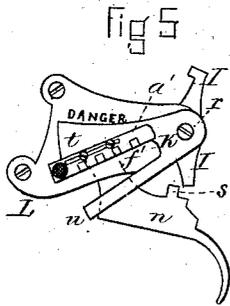
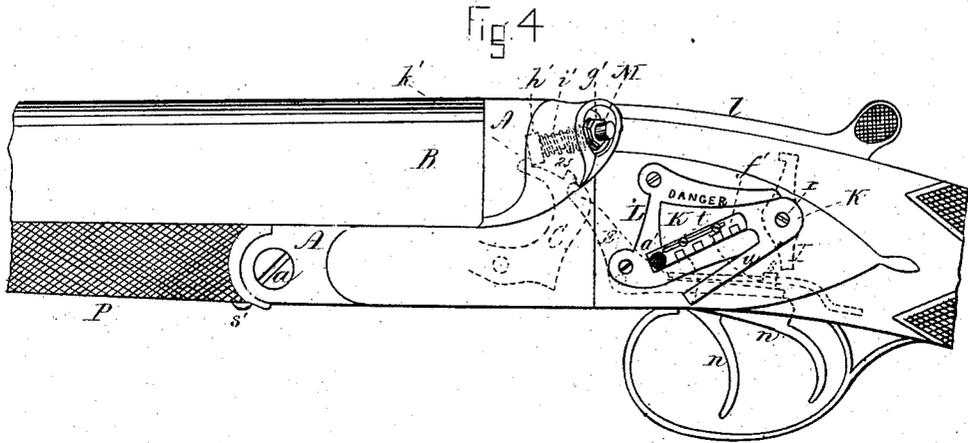
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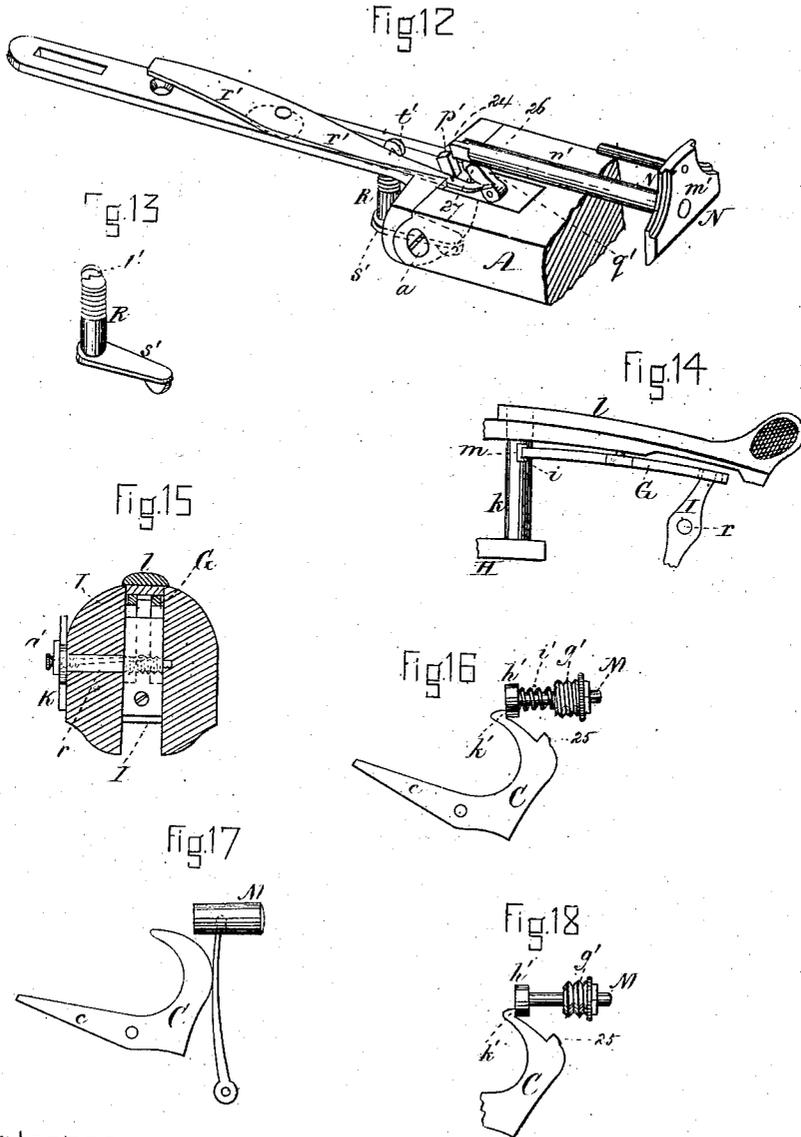
(No Model.)

3 Sheets—Sheet 3

D. KIRKWOOD.
Breech Loading Fire Arm.

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UNITED STATES PATENT OFFICE.

DAVID KIRKWOOD, OF BOSTON, MASSACHUSETTS.

BREECH-LOADING FIRE-ARM.

SPECIFICATION forming part of Letters Patent No. 240,147, dated April 12, 1881.

Application filed December 2, 1880. (No model.)

To all whom it may concern:

Be it known that I, DAVID KIRKWOOD, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain improvements in Breech-Loading Fire-Arms, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a plan of a portion of a breech-loading shot-gun having my improvements applied thereto. Fig. 2 is a vertical section through the same, illustrating the interior construction. Fig. 3 is a plan of the under side of a portion of the mechanism hereinafter described. Fig. 4 is a side elevation of that portion of the gun to which my improvements are applied. Figs. 5, 6, 7, 8, 9, and 10 are details, to be hereinafter referred to. Fig. 11 is a section on the line *xx* of Fig. 7. Fig. 12 is a view of the cartridge-shell ejector and its operative mechanism, representing the stop or device which is applied thereto to render its spring inoperative or modify its action, when desired. Fig. 13 is a view of the stop and its operating-lever detached. Fig. 14 is a detail representing, in elevation, the method by which the trigger-locking bar or lever is operated by the barrel-locking lever. Fig. 15 is a transverse section on the line *yy* of Fig. 2. Figs. 16, 17, and 18, are details.

The first part of my invention relates to an improvement on the self-cocking breech-loading gun for which Letters Patent No. 233,773 were granted to me October 26, 1880, in which an automatic trigger-locking device operated by the barrel-locking lever is employed to prevent the accidental discharge of the gun, an additional lever being used to unlock the trigger when the gun is to be fired. When, however, this gun is in the hands of an experienced person, and it is desired to fire with great rapidity, the necessity of moving this lever to unlock the triggers after each time that the hammers are cocked occasions some little trouble and delay, to avoid which is the object of this part of my invention, which consists in so constructing the trigger-locking device that it can, by an extra movement of a lever, push-knob, or button connected there-

with and operated by the hand, be moved into such a position as to be entirely uninfluenced by the barrel-locking lever and rendered inoperative, thus leaving the triggers constantly unlocked, so as to be always ready to discharge the gun, while for inexperienced persons, and others who desire to have the safety trigger-locking device always in a condition to be operated automatically, it can be instantly thrown into action by again moving the hand-lever or push-knob back to its original position, and the gun can thus be instantly adapted, by a single movement of the hand-lever or push-knob, for the use either of persons who do not desire to be troubled with a safety-locking device, or for those who demand such a protection against accident in this class of fire-arms.

My invention also consists in the employment of a lever of peculiar construction for operating the trigger-locking device by hand, in connection with a plate bearing certain words or characters indicating danger or safety, which are exposed to view at the proper times, and a device for locking the hand-lever in certain positions, and at the same time, if desired, exposing a word or character to indicate such position or condition of the parts.

My invention also consists in the employment, in a self-cocking gun having its hammers concealed from view, of pins or plungers adapted to be operated by the hammers in a peculiar manner, so as to indicate by their position whether the hammers are cocked or uncocked, thus affording a separate indicator of simple construction for each barrel, to show at a glance the position of its hammer, whereby additional security against accident is afforded.

My invention also consists in an improvement on the gun for which Letters Patent No. 233,256 were granted to me October 12, 1880, in which the cartridge-shell injector is first operated positively in a line parallel to the axis of the barrel to start or loosen and partially withdraw the empty shell, and is then suddenly acted upon by a spring, by which an accelerating outward movement is imparted to the ejector to cause it to instantly throw out the shell entirely clear of the barrel; and this portion of my invention consists in the combination, with the cartridge-shell ejector and its actuating-spring, of a stop adapted to limit

or modify the action of the spring upon the ejector, or entirely prevent the spring from acting thereon under certain circumstances, as will be more particularly described hereinafter.

5 In the said drawings, A represents the breech-piece of a double-barreled shot-gun, to which the barrels B are pivoted at *a*, to tilt downward at the muzzle and upward at the breech.

10 C represents one of the hammers, and D its actuating-spring. The hammer is pivoted at *b* to the breech-piece, its arm *c* bearing at its end a horizontal pin or spur, *d*, which projects upon a shoulder, *e*, formed on the locking-lug *f*, attached to the under side of the barrels. The hammer bears, near its striking end, a tumbler-catch, *g*, which is adapted to engage with the sear-nose *h* on the sear E, when the hammer is cocked by the direct action of the shoulder *e* of the locking-lug *f* on the arm *c*, when the barrels are tilted up at the breech to receive the cartridges.

The trigger and trigger-spring may be of the ordinary construction, or, with some kinds of guns, the sear may be in one piece with the trigger.

The construction and mode of operation of the hammers being the same as in my aforesaid Letters Patent No. 233,773, will not be here further explained, as they form no part of my present invention.

The device for locking the trigger to prevent the accidental discharge of the gun is substantially the same as that described in my aforesaid Letters Patent No. 233,773, but is capable of being moved to a greater extent, for a purpose to be hereinafter particularly described. This trigger-locking device consists of a sliding bar, G, one end of which projects into a recess, *i*, in the side of the stud *k*, which is operated by the top lever, *l*, in retracting the bolt H from the locking lugs, as seen in Fig. 14. This recess is of such a shape that upon the partial revolution of the stud *k* the shoulder *m*, which forms one side thereof, acts to move the bar horizontally, thereby causing it to move the locking bar or lever I sufficiently to shut upon and lock the triggers *n*.

In lieu of the recess in the stud *k*, the stud may have an arm or pin projecting therefrom, as shown in Figs. 2 and 3, for effecting the movement of the sliding bar G, which is provided with a slot, *p*, and a screw-stud, *q*, which passes through the slot *p* in the sliding bar, fastens it to the strap portion of the breech-piece, and allows the bar to slide a limited extent.

There is a loose connection between the locking-lever I and sliding bar G, the locking-lever I being attached to a horizontal shaft or pivot, *r*, which bears at its outer end the side lever, K. Upon moving the top lever, *l*, to withdraw the locking-bolt H, the bar G is moved through the connections described sufficiently to throw the lower end of the locking bar or lever I into a position directly over a projection, *s*, on each trigger *n*, which is thus

automatically locked, as desired, each time that the barrels are unlocked, the locking-lever I remaining in that position after the top lever, *l*, has returned to its original position, and until it is moved therefrom into the position seen in Figs. 4 and 5, by operating the side lever, K, by the hand, as is necessary, before the gun can be discharged—a reliable safeguard being thus afforded against accidents.

I do not confine myself to the mechanism shown for the purpose of operating the locking bar or lever I, but may use any suitable mechanism employed for locking the barrels to the stock, which has to be moved by hand in unlocking the barrels, so that the barrels may be unlocked from the breech-piece, and the locking bar or lever I operated by one movement of a lever, push-knob, or button.

The side lever, K, is made V-shaped, or with two arms or bifurcators, *t u*, as seen in Figs. 4, 5, 6, 7, and 9, and the side plate, L, contiguous thereto, bears upon its face the words "Danger," "Constant," and "Locked," which are so arranged with respect to the arms *t u* of the lever K that when the trigger is locked the word "Locked" will be exposed to view, and the words "Danger" and "Constant," concealed, as seen in Fig. 6; and when unlocked the word "Danger" exposed, and the words "Locked" and "Constant" concealed, as seen in Figs. 4 and 5, thus indicating at once the position of the parts and affording an additional safeguard. I do not, however, confine myself to the employment of a lever, K, of the exact form shown, as it might be made with a single arm only, instead of with two arms, but in such case it would not possess equal advantages in disclosing and concealing the words on the plate L, indicating the condition of the gun.

With experienced and careful persons, who desire to fire the gun with great rapidity, the automatic locking of the trigger and the necessity of moving the lever K by hand to unlock the triggers after each time that the hammers are cocked, which occasions some little trouble and delay, might be found undesirable, and I have therefore so constructed and arranged the trigger-locking mechanism as to admit of its being moved to such a position as to be uninfluenced by the movement of the barrel-locking lever, and rendered inoperative until such time as it may be again required for use, thus practically eliminating it from the gun for the time being. This is accomplished by increasing the scope of the movement of the lever K and locking bar or lever I, so that by moving the lever K into the position seen in Fig. 7 the lower end of the lever I will be carried over beyond the projection *s* of the trigger *n* on the side opposite to that shown in Figs. 4 and 5, thus unlocking the triggers, and at the same time moving the sliding bar G into such a position that it will be out of the reach of, and will not be moved or acted upon by, the mechanism connected with the top lever, *l*, when the latter is moved to unlock

the barrels to allow them to be thrown up at the breech, and thus when the lower end of the lever I is on one side of the projection *s* the trigger is unlocked, but is again automatically locked on the succeeding movement of the top lever, *l*; but when the lower end of the lever I is on the opposite side of the projection *s*, as in Fig. 7, the trigger will remain permanently unlocked, or until the lever K is again moved by the hand back to its original position, and by this simple extra movement of the lever K the gun can be thus instantly adapted for the use of persons who do not desire, for the time being, to be delayed by the necessity of using the safety trigger-locking device, which, however, can be instantly thrown into action and rendered operative, as before, by moving the lever K back again to its former position. When the trigger-locking device is thrown out of action or rendered inoperative the lower arm, *u*, of the lever K is caused to cover the word "Locked," and the two words "Danger," "Constant" are both exposed to view within the space between the bifurcations *t u*, as seen in Fig. 7, thereby indicating the exact condition of the gun.

To the arm *t* of the lever K is secured a sliding bar, *a'*, which is provided on its inner side with a projection or catch, *b'*, which is adapted to slide within a curved slot or groove, *c'*, in the plate L as the lever is moved up or down by the hand, and this groove *c'* is provided with two lateral notches, *d' e'*, into which the catch *b'* can be moved by operating the slide *a'*, so as to lock the lever K securely in the position which it occupies when the trigger-locking device is thrown out of action, as in Fig. 7, or when it is down, with the trigger locked, as seen in Fig. 6, the latter affording additional security against accident when the gun is put away loaded. The slot *c'* is preferably made, as shown in Figs. 8 and 10, with two concentric portions, 20 21, at different distances from a common center, forming a shoulder, 22, which serves as a stop against which the catch *b'* strikes when the lever K is first thrown up, rendering it necessary to move the slide *a'* slightly before the lever can be moved up to throw the trigger-locking device out of action, so that such movement can only be made by design, and not accidentally. The slide *a'* is provided with a series of notches, *f'*, which are so arranged as to expose the word "Fast" when the lever K is locked in the position which it occupies when the trigger is locked, thus indicating that the trigger is double or fast locked and that the slide *a'* must be first moved to enable the trigger to be released.

Instead of the lever K being applied to the side of the stock, as shown, it is evident that it may be placed on the top of the stock and suitably connected with the trigger-locking lever I or the sliding bar G; and in lieu of a lever, K, a push knob or button, suitably connected with the lever I or sliding bar G, may be employed, if preferred, to operate the trigger-locking device, in which case suitable

words or characters indicating the condition of the gun could be disclosed through a slot or aperture by means of simple mechanism 70 connected with the moving parts.

The breech-piece A is provided on each side with a sliding pin or plunger, M, (one for each barrel,) to indicate by its position whether its hammer is cocked or uncocked. This pin M 75 slides through a nipple, *g'*, which is screwed into the breech and holds the pin in place. At the front end of the pin is an enlargement, *h'*, between which and the inner end of the nipple is placed a spiral spring, *i'*. 8c

The striking end of the hammer C is provided with a projection, *k'*, which, when the hammer is being cocked, strikes against the forward end of the pin M and forces it outward positively against the resistance of the spring *i'*, causing its rear end to project out some little distance from the nipple, and thus indicate by its position that the hammer is cocked. When, however, the hammer is released and is thrown forward to discharge the gun the indicator-pin M is forced inward by its spring *i'*, 90 following the hammer as far as the limit of its movement will allow, which causes the outer end of the pin to be withdrawn sufficiently to show by its change of position that the hammer 95 is uncocked.

Instead of a spiral spring, *i'*, a flat spring may be employed to force the indicator-pin inward on the release of the hammer, as seen in Fig. 17, which represents a modification of this part of my invention. In this latter construction the upper end of the flat spring is connected with the indicator-pin, the hammer on being cocked striking against the spring to push the pin outward, instead of being brought into contact with the pin itself, as is the case where a spiral spring is employed, as in Figs. 2 and 16. 105

If desired, the spring may be dispensed with and the pin M forced inward by the direct action of a projection, 25, upon the hammer, adapted for the purpose, as seen in Fig. 18, in which case the indicator-pin will be moved both inward and outward positively by the direct action of the hammer itself. I prefer, 115 however, to employ a spring for throwing the indicator-pin forward on the release of the hammer, for the reason that where no spring is employed the momentum of the hammer is liable to be diminished by its contact with the pin 120 M, and the overcoming of the inertia thereof in the act of forcing it inward.

By providing the hammer, however, with the two projections *k'* 25, (shown in Figs. 4 and 16,) in connection with a spring applied to the pin M, the possibility of the pin M not being carried inward on the descent of the hammer is avoided, for the reason that if the pin should accidentally stick in its bearings, from rust or other cause, so that the spring would fail to 130 force it inward, the rear projection, 25, of the hammer would strike it and insure its movement, thus preventing the sportsman from being deceived by the position of the pin, if it

were left projecting after the descent of the hammer. A separate safety device of simple construction for each hammer is thus afforded, which will indicate at a glance whether it is cocked or uncocked.

In practice I prefer to arrange the indicator-pins at such an angle as to enable them to be operated by the hammers with the minimum degree of friction, and also to prevent, as far as possible, the entrance of water while the gun is being carried by the sportsman.

N is the cartridge-shell ejector, the face-plate m' of which fits, as usual, into a recess at the rear ends of the barrels, and is provided with a rod or shank, n' , adapted to slide longitudinally in an opening between the barrels, made to receive it. p' is a pin which projects up from the breech-piece A, near the joint-pin a , in such a position that as the rear ends of the barrels are thrown up the end 24 of the shank or rod n' of the ejector is brought, as usual, into contact therewith, and is thus, by the first part of the movement of the barrels, forced outward with a positive motion, which serves to start or loosen and partially withdraw the empty shell, and as the shank or rod n' continues to move outward an inclined shoulder or projection, 26, on its side, is brought into a position to be acted upon by the end 27 of a short lever, q' , against which rests one end of a powerful spring, r' , the force of which is thus brought to bear upon the ejector, by which means a sudden outward movement or impulse is given thereto, which causes it to instantly eject or throw out the shell entirely clear of the barrel as soon as the rear end of the latter is sufficiently elevated to allow the shell to clear the face of the breech-piece. When the ejector is forced back to its normal position the end 27 of the lever q' rests against the under side of the rod n' , which produces the maximum tension on the spring r' .

The above-described mechanism for operating the ejector is, however, substantially the same as that described in my aforesaid Letters Patent No. 233,256, and forms no part of my present invention.

As it is not always desirable that the cartridge-shell should be ejected clear of the gun—as, for instance, when the sportsman is in a boat, which might cause the loss of the shells—I overcome this difficulty by employing a stop which acts upon the ejector, and may be thrown in and out of action by a lever operated from the outside of the gun, or otherwise, this stop serving to modify or entirely prevent the sudden outward impulse given by the spring which operates the ejector so that the latter may have a positive movement only, as in ordinary breech-loading guns, or receive a greater or less powerful impulse from the spring to throw out the cartridge-shell with more or less force, as may be desired. One method of accomplishing this is shown in Figs. 2, 12, and 13, in which a stud or short shaft, R, is applied to the fore part, P, of the stock, and provided outside thereof with a short le-

ver, s' , which can be easily moved by the hand. The stud R is provided on its inner face or upper end with a hook or projection, t' , which, as the stud is partially revolved by the lever s' , projects or extends over the spring r' in such a manner as to serve as a stop and prevent it from acting upon the lever q' and imparting a sudden impulse to the ejector. By turning this lever s' more or less the projection t' can be made to limit the throw of the spring r' to a greater or less extent, so as to cause the shells to be expelled with more or less force.

Instead of the stop being made to operate upon the spring r' , which actuates the ejector, it may be so arranged as to act upon the stem or rod n' of the ejector, and thus limit the outward motion or throw thereof; or the stop may be so constructed as to limit the downward movement of the barrels, so that the ejector will not be moved outward sufficiently far, or to that point where the spring is allowed to impart an outward impulse thereto. I do not therefore limit myself to the particular construction of the stop or the manner in which it is applied, as these may be varied in any suitable manner without departing from the spirit of my invention, so long as the stop limits or modifies the action of the spring upon the ejector, or entirely prevents the spring from having any influence or action thereon.

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

1. In a self-cocking gun, a movable trigger-locking dog arranged to pass and repass the contact-point on the trigger, so as to be operated by the locking mechanism of the gun in one position, and to be beyond the control of such mechanism in another position, and an operating thumb-piece, all in combination, for the purpose set forth.

2. In a break-down self-cocking gun, an automatic trigger-locking dog, I, an indicating-plate, L, provided with a zigzag slot, a covering-plate, K, provided with an aperture, f' , and rigidly connected to the locking-dog, and a slide, a' , having bearings in plate K, and provided with a stud, b' , engaging in zigzag slot, all combined, arranged, and operating as set forth.

3. In a self-cocking gun, the indicator-plate L, in combination with a covering-plate, K, to operate the locking-dog, and provided with an aperture or slot, f' , substantially as and for the purpose set forth.

4. The accelerating extractor N, in combination with a controlling-stop and an operating thumb-piece, for the purpose specified.

5. In a breech-loading self-cocking gun, the lever K, in combination with the slide a' , provided with the catch b' , and the plate L, provided with the slot or groove e' , having the lateral notches d' e' , all constructed to operate substantially as and for the purpose herein described.

6. In a break-down self-cocking gun, the combination, with the trigger-locking device I,

operated by the barrel-locking lever *l*, or equivalent device, and the lever *K*, of a plate, *L*, bearing words or characters indicating "Danger" and "Safety," so placed as to be exposed
5 to view, or concealed by the lever in such a manner as to always indicate the exact condition of the gun, substantially as described.

7. In a breech-loading gun, the combination, with the cartridge-shell ejector *N* and its actuating-spring *n'*, of the stop or stud *R*, pro-
10

vided with a lever, *s'*, and at its inner end with a hook or projection, *t'*, adapted to engage with the spring *n'*, substantially in the manner and for the purpose set forth.

Witness my hand this 19th day of November, A. D. 1880.

DAVID KIRKWOOD.

In presence of—

P. E. TESCHEMACHER,
W. J. CAMBRIDGE.