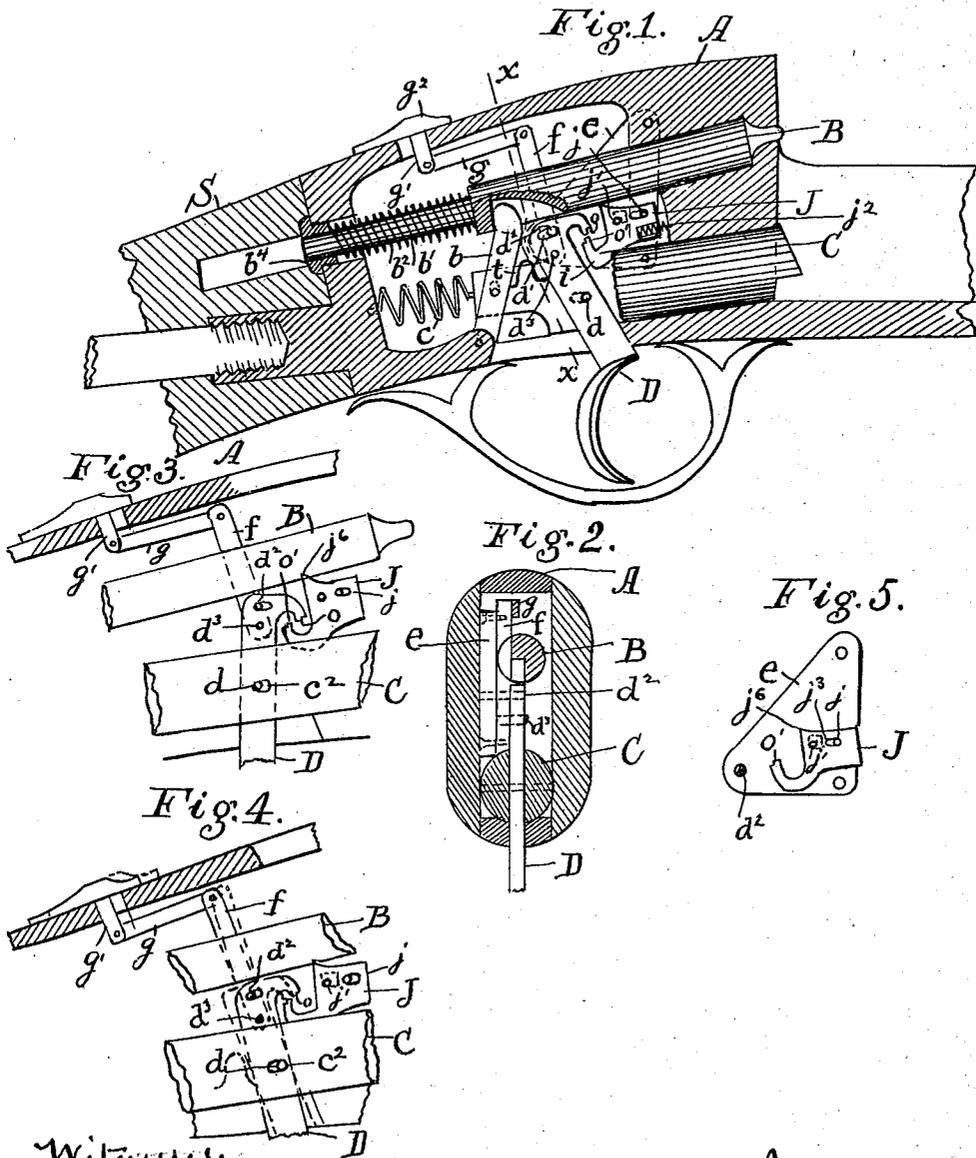


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L. H. COBB.
BREAKDOWN GUN.
APPLICATION FILED APR. 6, 1904.



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UNITED STATES PATENT OFFICE.

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BREAKDOWN GUN.

SPECIFICATION forming part of Letters Patent No. 782,827, dated February 21, 1905.

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To all whom it may concern:

Be it known that I, LYMAN H. COBB, a citizen of the United States of America, and a resident of Fitchburg, Worcester county, Massachusetts, have invented certain new and useful Improvements in Breakdown Guns, of which the following is a specification.

My invention relates to a breakdown gun; and the object of my invention is to produce a gun in which the locking-bolt may be withdrawn to allow the breech to be opened, the hammer or firing-pin cocked, the safety device set, and the gun fired, all by the movement of the trigger.

With this end in view I provide the operating mechanism hereinafter described and claimed.

I illustrate my invention in the mechanism shown in the accompanying drawings, although I wish to be understood as showing this construction merely by way of illustration, as many mechanical changes may be made while still keeping within the terms of my invention.

In the drawings, Figure 1 is a central vertical and longitudinal section showing the novel features of my invention. Fig. 2 is a cross-section on the line *x x* of Fig. 1. Fig. 3 is a diagrammatic view, the same as Fig. 1, showing one position of the parts. Fig. 4 is a like view showing another position, and Fig. 5 is a detail of the trigger-plate and sear.

A represents the frame of the gun, and S is the stock.

C is the sliding bolt which locks the barrel down in the usual manner, and *c* is the spring which forces the bolt forward.

The firing-pin B is located above the bolt in the usual manner, and it has an extension *b'* in its rear end, which passes through a guide-nut *b¹* in the rear end of the frame. The main-spring *b²* surrounds the extension *b'* and tends to force the firing-pin forward.

The parts thus far described are common to many guns and form no part of my invention.

Means are provided by which the backward movement of the locking-bolt retracts the firing-pin. As here shown, this is done by means of a lever *b*, which is pivoted in the lower portion of the frame and passes through a longi-

tudinal slotted opening in the rear portion of the bolt C. The upper end of the lever *b* enters a recess in the under side of the firing-pin, and it is connected with the bolt by a suitable pin working in a vertical slot to allow of some slack motion vertically. The recess in the under side of the firing-pin is so shaped as to allow the lever to tilt forward free from the pin after the latter has been cocked. The firing-pin is held in its cocked position by means of the sear J, which, as here shown, is pivoted to the trigger-plate *e*, the latter being fixed by screws or otherwise in the side of the frame. The sear is pivoted to the plate by means of the pivot-pin *j*, which passes through a horizontal slot *j³* in the sear, and the upper rear edge of the sear is provided with an engaging point or corner *j⁶*, which is forced upward against the under side of the firing-pin by the spring *j²*, which is placed in a recess in the forward end of the sear below the pivoting-point and presses against the frame of the gun. The vertical movement of the engaging end of the sear is limited by the pin *j¹*, which passes through the sear and through an opening, which permits a limited vertical and horizontal movement of the sear. This opening is here shown in dotted lines and is shown as a square opening. When the sear is in engagement with the firing-pin, the sear is pushed bodily forward against the frame of the gun.

For the purpose of disengaging the sear and firing the gun I provide on the rear portion of the sear a projection or shoulder *o'*, which is here shown on the extremity of a U-shaped extension, which forms a recess or space between the shoulder and the sear proper, extending below the level of the shoulder *o'* to permit a corresponding shoulder *o* on the upper end of the trigger D to pass by the shoulder *o'* and to be depressed behind it without releasing the sear. The shoulder *o* on the trigger extends forward from the trigger and is separated from the trigger proper by a space extending above the level of the shoulder *o*. Both the shoulders *o* and *o'* are formed with a projecting portion by which when they are brought into engagement the upper end of the trigger acts as a fulcrum when the lower end is pulled back.

The trigger D passes up through the slot in the bolt C, to which it is pivoted by means of a pin-and-slot connection. As here shown, the pin d is in the trigger and the slot c^2 is in the bolt. The upper end of the trigger is supported as to have a limited horizontal motion backward and forward to carry the shoulder o into the space behind the shoulder o' . As here shown, I form a horizontal slot d' in the upper end of the trigger, and through this slot passes a pin d^2 , so that the upper end of the trigger may have a limited horizontal movement. A spring t is inserted between the trigger and the lever b to hold the pin d in the forward end of its slot. The position of the upper end of the trigger with relation to the opposing shoulders o and o' is controlled by means of a safety-lever f , by the movement of which the upper end of the trigger is thrown over. As here shown, the lower end of the lever is pivoted to the trigger-plate by the pin d^2 , and below that point it is pivoted to the trigger by a pin d^3 , so that the swinging of the lever swings the upper end of the trigger forward or backward. The lever f is controlled by a safety-plate g^2 on the top of the frame, and this plate has a stud g' projecting downward through an opening in the frame, where it is pivoted to a link g , which is in turn pivoted to the upper end of the lever f . Thus by sliding the safety-plate forward or back the upper end of the trigger is moved in the opposite direction.

The operation of the gun is as follows: When the trigger is drawn back, it draws back the bolt, unlocking the barrel, which may then be tilted up and a cartridge inserted. The backward movement of the bolt forces back the lever b , which in turn forces back the firing-pin until the notch in its under side catches on the point j^6 of the sear, thus cocking the gun and forcing the sear forward. During the backward movement of the bolt the pin in the upper end of the trigger has been forced forward, carrying the shoulder o forward and downward of the shoulder o' and into the recess between it and the sear proper. The safety-lever f has also been forced back by the forward movement of the pivot d^3 , and the safety-slide is back in the safe position—in other words, the safety is set. The position of the parts when the trigger is in its rear position is shown in Fig. 3. When the pressure on the trigger is released, the spring of the bolt will force the bolt and trigger forward into the original position, except that the upper end of the trigger will be forward of its original position on account of the position of the lever f . The pin d will be forced into the front end of its slot by the spring t , so that the trigger can be partially retracted without starting the bolt. This position is shown in Fig. 4 in the full lines. When the parts are in this position, the trigger may be pulled out; but as the shoulder o is inside of the shoulder o' it will not

touch the sear, and consequently will not fire the gun. When the gun is to be fired, the safety-plate is pushed forward into the position shown in Fig. 1 and the upper end of the trigger is drawn back to the position shown in dotted lines in Fig. 4—that is, with the two shoulders o and o' close together, the shoulder o uppermost. If now the trigger is pulled, it will turn on the point d^2 as a fulcrum and depress the shoulder o sufficiently to release the sear and fire the gun, the shoulders o and o' interlocking, so that the shoulder o forms a fulcrum for the trigger. The trigger will be prevented from going far enough back to unlock the barrel by the pin j' in the sear bringing up against its slot in the trigger-plate, and it will not start the bolt, as the pin d will move in its slot far enough to discharge the gun. It will thus be seen that the gun may be cocked, the safety set, the barrel unlocked, and the gun fired, all by the movement of the trigger. It will be observed that as soon as the trigger is released after firing the spring t will force it forward and the sear will be released and pushed backward by the spring j^2 into the position shown in Fig. 1.

I claim—

1. In a breakdown gun the combination of a spring-actuated locking-bolt, a spring-actuated firing-pin above said bolt, a lever for retracting said firing-pin actuated by the trigger, a spring-actuated sear beneath said firing-pin having a shoulder or projection on its rear portion separated from the main portion of the sear by a space or recess extending below the level of the shoulder, a trigger-plate, a trigger pivoted to said bolt and connected with said trigger-plate by means of a slotted connection which will allow the upper end of the trigger a limited horizontal motion, the upper end of said trigger having a shoulder or projection extending forward and separated from the main portion of the trigger by a space which extends above the level of said shoulder or projection, and means for throwing the upper end of said trigger backward and forward to bring said shoulder into and out of the firing position.

2. In a breakdown gun the combination of a spring-actuated locking-bolt, a spring-actuated firing-pin above said bolt, a lever for retracting said firing-pin acted upon by said bolt, a spring-actuated sear beneath said firing-pin having a shoulder or projection on its rear portion separated from the main portion of the sear by a space or recess extending below the level of the shoulder, a trigger-plate, a trigger pivoted to said bolt and connected at its upper end to said trigger-plate by means of a pivoting-pin and a horizontal slot, the upper end of said trigger having a shoulder or projection extending forward and separated from the main portion of the trigger by a space which extends above the level of said shoulder and means for throwing the upper end of said

trigger forward and backward to bring said shoulders into and out of firing position.

3. In a breakdown gun the combination of a spring-actuated locking-bolt, a spring-actuated firing-pin above said bolt, a lever for retracting said firing-pin acted upon by said bolt, a spring-actuated sear beneath said firing-pin having a shoulder or projection on its rear portion separated from the main portion of the sear by a space or recess extending below the level of the shoulder, a trigger-plate, a trigger pivoted to said bolt and connected to said trigger-plate by means of a pivoting-pin passing through a horizontal slot in the upper end of the trigger, the upper end of said trigger having a shoulder or projection extending forward and separated from the main portion of the trigger by a space which extends above the level of the shoulder, and a safety-lever pivoted to the trigger-plate by said pivoting-pin and to the trigger below said slot.

4. In a breakdown gun, the combination of a spring-actuated locking-bolt having a central vertical slot in its rear portion, a spring-actuated firing-pin above said bolt, a lever for retracting said firing-pin acted upon by said bolt, a spring-actuated sear beneath said firing-pin having a shoulder or projection on its rear portion separated from the main portion of the sear by a space or recess extending below the level of the shoulder, a trigger-plate, a trigger passing through the slot in said bolt and pivoted thereto, said trigger being connected with said trigger-plate by means of a pivoting-pin and a horizontal slot, the upper end of said trigger having a shoulder or projection extending forward and separated from the main portion of the trigger by a space which extends above the level of the shoulder, said trigger being immediately in the rear of the sear so that said shoulders may engage and a safety-lever pivoted to said trigger-plate and to said trigger below its upper end and a sliding plate on the top of the frame for controlling said safety-lever.

5. In a breakdown gun the combination of a spring-actuated locking-bolt, having a central vertical slot in its rear portion, a spring-actuated firing-pin above said bolt, a lever for retracting said firing-pin pivoted to the lower portion of the frame and passing through the slot in the bolt and acted upon by said bolt, a spring-actuated sear beneath said firing-pin having a shoulder or projection on its rear portion separated from the main portion of the sear by a space or recess extending below the level of the shoulder, a trigger-plate, a trigger passing through the slot in said bolt and pivoted thereto, said trigger being connected with said trigger-plate by means of a pivoting-pin and a horizontal slot, the upper end of said

trigger having a shoulder or projection extending forward and separated from the main portion of the trigger by a space which extends above the level of the shoulder, said trigger being immediately in rear of said sear so that said shoulders may engage and a safety-lever pivoted to said trigger-plate and to said trigger below its upper end and a sliding plate on the top of the frame for controlling the safety-lever.

6. In a breakdown gun, the combination of a spring-actuated locking-bolt, a spring-actuated firing-pin above said bolt, a lever for retracting said firing-pin actuated by the trigger, a spring-actuated sear beneath said firing-pin having a shoulder on its rear portion separated from the main portion of the sear by a space or recess extending below the level of the shoulder, a trigger-plate, a trigger pivoted to said bolt and connected with said trigger-plate by means of a slotted connection which will allow the upper end of the trigger a limited horizontal motion, the upper end of said trigger having a shoulder extending forward and separated from the main portion of the trigger by a space which extends above the level of said shoulder, said shoulders having projections which cause them to interlock when in engagement and means for throwing the upper end of said trigger backward and forward to bring said shoulders into and out of the firing position.

7. In a breakdown gun, the combination of a spring-actuated locking-bolt, a spring-actuated firing-pin above said bolt, a lever for retracting said firing-pin actuated by the trigger, a sear pivoted beneath said firing-pin with a yielding horizontal motion, said sear having a shoulder on its rear portion separated from the main portion of the sear by a space extending below the level of the shoulder, a trigger-plate, a trigger pivoted to said bolt and connected with said trigger-plate by means of a slotted connection, which will allow the upper end of the trigger a limited horizontal motion, the upper end of said trigger having a shoulder extending forward and separated from the main portion of the trigger by a space which extends above the level of said shoulder, said shoulders having projections which cause them to interlock when in engagement and means for throwing the upper end of said trigger backward and forward to bring said shoulders into and out of a firing position.

Signed at Fitchburg this 9th day of March, 1904.

LYMAN H. COBB.

Witnesses:

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CHAS. E. WARE.