

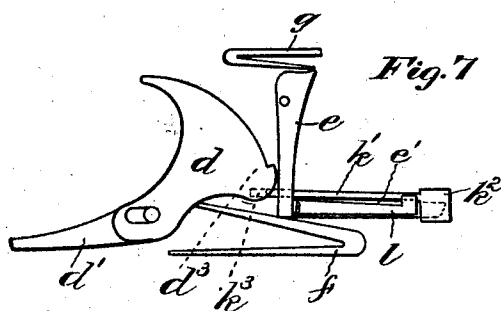
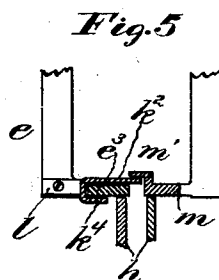
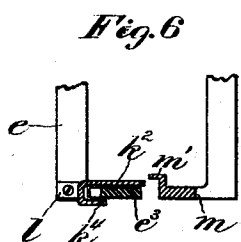
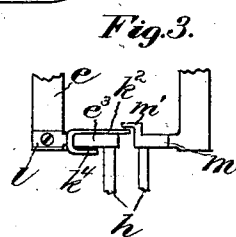
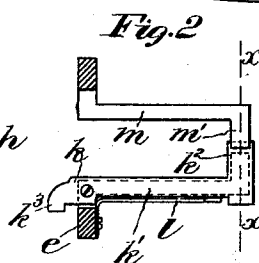
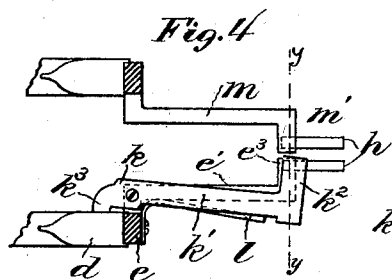
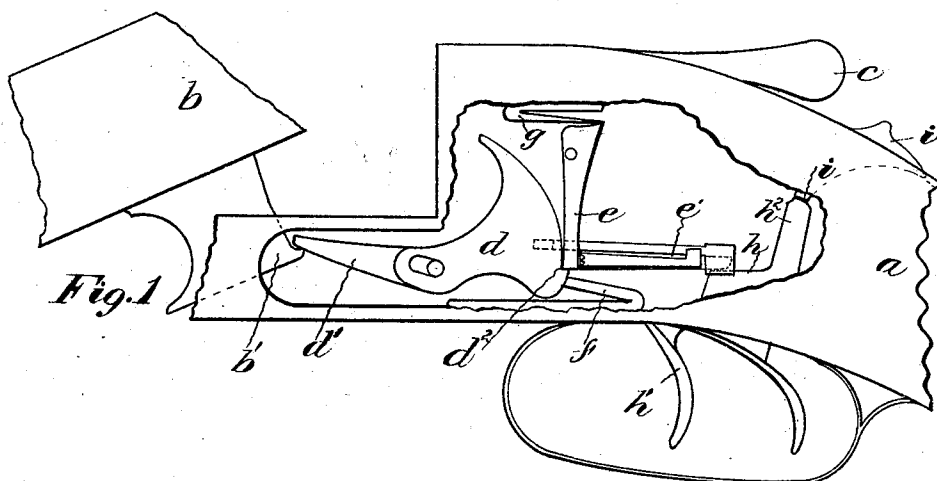
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# SINGLE TRIGGER MECHANISM FOR FIREARMS.

(Application filed Feb. 15, 1897.)

(No Model.)

2 Sheets—Sheet 1.



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No. 697,061.

Patented Apr. 8, 1902.

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SINGLE TRIGGER MECHANISM FOR FIREARMS.

(Application filed Feb. 15, 1897.)

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2 Sheets—Sheet 2.

Fig. 8

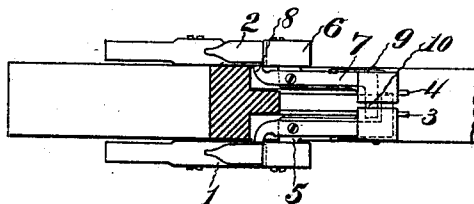


Fig. 9

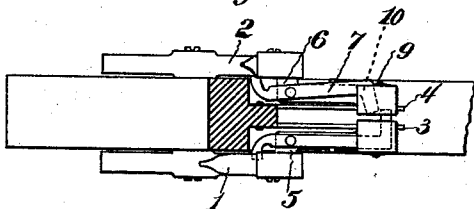


Fig. 10

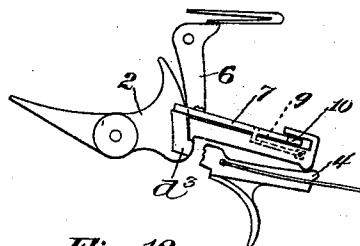


Fig. 11

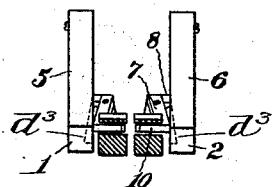
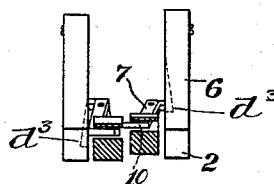


Fig. 12



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# UNITED STATES PATENT OFFICE.

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## SINGLE-TRIGGER MECHANISM FOR FIREARMS.

SPECIFICATION forming part of Letters Patent No. 697,061, dated April 8, 1902.

Application filed February 15, 1897. Serial No. 623,371. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE E. WITHERELL, of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Firearms, of which the following is a full, clear, and exact description, whereby any one skilled in the art can make and use the same.

The object of my invention is to provide a firearm which has a plural number of barrels with a device by means of which the charge in more than one barrel can be fired by pulling a single trigger; and my improvement consists in the combination of the parts and the details of construction of such parts, as hereinafter described, and more particularly recited in the claims.

Referring to the drawings, Figure 1 is a view in side elevation of a part of a double-barreled shotgun, showing a barrel broken down and parts of the lock-plate removed to show construction. Fig. 2 is a detail top view of part of the lock mechanism, showing the coupler formed on the left-hand sear, hammer uncocked. Fig. 3 is a detail view, in rear elevation, of the parts shown in Fig. 2. Fig. 4 is a detail plan view of part of the lock mechanism, showing the left-hand hammer cocked. Fig. 5 is a detail view in cross-section through the parts shown in Fig. 2 on plane denoted by dotted line *x x*. Fig. 6 is a detail view in cross-section through the parts shown in Fig. 4 on line denoted by dotted line *y y* of Fig. 4. Fig. 7 is a view in side elevation of the left-hand hammer and parts appurtenant in position as shown in Fig. 2 of the drawings. Fig. 8 is a plan view of a modification, showing part of the lock mechanism of a double-barrel gun with my improvement appurtenant to each barrel. Fig. 9 is a plan view of the parts shown in Fig. 8 with the right-hand hammer cocked. Fig. 10 is a view in side elevation of this modified form, showing the right hammer from within or looking at its left side, with parts broken away to illustrate the construction. Fig. 11 is a view in rear elevation of the parts shown in Fig. 8 with both hammers cocked and the rear of the sears broken away in cross-section to uncover the

couplers. Fig. 12 is a view of the parts shown in Fig. 11 with the mechanism appurtenant to the right-hand barrel shown after the trigger is pulled and with the sear lifted.

In the accompanying drawings the letter *a* denotes the stock of a gun, and *b* a barrel pivoted thereto in the usual manner. The barrel and stock are provided with locking means for holding the former in its closed position, the unlocking of these parts being accomplished by means of a thumb-lever *c*, pivoted on the stock.

A hammer *d* is mounted in the frame, its upper forward end having the usual firing-pin and a cocking-arm *d'*, projecting forward of the pivot in position to engage a cocking-lug *b'*, projecting from the under side of the barrel. A sear-notch *d<sup>2</sup>* is formed on the back of the hammer for engagement with the forward edge of the sear *e*, and a mainspring *f* is in engagement with the hammer to throw it forward when disengaged from the sear. The sear *e* is pivoted in the frame and has a sear-tail *e'* projecting rearwardly, and a sear-spring *g* holds the sear normally engaging the notch in the hammer to hold the latter cocked.

A trigger is pivoted in the frame, one end *h* projecting downward thereunder, and the upper end *h* is located in position to strike the sear-tail and carry it upward as the lower end of the trigger is pulled backward. An upward projection *h<sup>2</sup>* underlies a slide *i*, mounted in the stock, a thumb-piece *i'* being connected to the slide. When this slide is in its backward position, the projection *h<sup>2</sup>* is in engagement therewith, so that the trigger cannot be raised to disengage the sear from the hammer, and thus cause the discharge of the gun.

All of the above parts are of old and well-known construction and form, except in combination with the parts to be hereinafter described, no feature of this invention. The parts above described are those constituting the cocking and firing mechanism appurtenant to one of the barrels of a double-barreled gun, and it is to be understood that a duplicate of the described parts (except as hereinafter noted) is to be used in such a gun

to complete the mechanism, one set being used in connection with each of the barrels.

In the form of sear herein shown and the one adopted for the purpose of illustrating my invention the sear-tail is offset laterally from the sear and has at its rear end a lateral extension  $e^3$  projecting toward the opposite sear, but stopping short of it. A like projection is located on the sear-tail of the sear appurtenant to the other barrel, the projections from each of said sears extending toward each other. This projection  $e^3$  is located in the path of movement of the part  $h$  of the trigger.

A coupler  $k$  is pivoted on top of the sear-tail  $e'$ , as shown on that sear appurtenant to the left-hand barrel, the pivot being preferably located near the body of the sear. A coupler-tail  $k'$  projects rearward and has a lateral projection  $k^2$  projecting toward the opposite sear. A cam extension  $k^3$  projects forward of the pivot in contact with a cam  $d^3$ , formed on the side of the hammer  $d$ , as shown in full lines in Fig. 10 and in dotted lines in Figs. 11 and 12 of the drawings. A coupler-spring  $l$  is secured to the sear and presses against the coupler to hold it normally in that position of its play toward the opposite sear. It is obvious that this coupler may be pivoted on the sear appurtenant to the cocking and firing mechanism of either barrel.

The sear-tail  $m$  of the opposite sear to that on which the coupler is pivoted is curved upward, so that the lateral projection  $m'$  on its outer end lies in a plane above the projection  $e^3$  to such an extent as to allow the projection  $k^2$  on the coupler  $k$  to pass underneath said projecting part  $m'$  under the impulse of the spring  $l$  and as shown in Fig. 3 of the drawings. This rear end of the coupler  $k$ , which is mounted on one of the sears, underlies the projection on the rear end of the other sear at all times when both of the hammers are down or the piece uncocked.

When the parts comprising the mechanism appurtenant to each barrel are in position with both barrels cocked, the cam extension  $k^3$  on the coupler  $k$  rests against the high part of the cam  $d^3$  on the hammer  $d$ . This holds the lateral projection  $k^2$  in such position that it will not engage the lateral projection on the tail of the opposite sear. As the hammer  $d$  is thrown forward the cam projection  $k^3$  rides down the cam  $d^3$ , allowing the coupler to be swung laterally on its pivot under the impulse of the coupler-spring  $l$  and locates the lateral projection  $k^2$  under the lateral projection on the opposite sear  $m$ . The hammer  $d$  is released by a pull on the left-hand trigger, and if a second pull be exerted on the same the upward movement of the sear-tail  $e'$ , carrying the projection  $k^2$  against the overhanging part  $m'$  on the sear  $m$  and lifting it, trips the right-hand hammer. Thus by two successive pulls on the one trigger both of the barrels may be fired.

In order to provide a proper engagement

of the sear-tail and coupler, so that they shall swing together in a vertical plane without bringing a strain on the pivot of the coupler, its rear portion is bent around the sear-tail, with the part  $k'$  underlying the tail, as shown in Fig. 6 of the drawings.

It is obvious that my invention herein described may be attached to a gun in which the hammers are exposed by slight changes in the mechanism requiring the exercise of nothing more than mere mechanical skill.

The operation of the device is as follows: The parts of the device being in the relative position shown in Fig. 1 of the drawings, the rear end of the barrel  $b$  is swung downward into place, leaving the mechanism appurtenant to each barrel cocked. The slide  $i$  is pushed forward by means of a thumb-piece  $i'$  moving the piece out of the path of movement of the projection  $h^2$  on the trigger appurtenant to each barrel. The projection  $h'$  of the forward trigger  $h$  being pressed backward, the upper rear portion of the trigger is raised, carrying with it the sear-tail  $e^3$  and disengaging the sear from the notch  $d^2$  on the hammer  $d$ . The latter is thrown suddenly forward under the impulse of the mainspring  $f$ , bringing the firing-pin into contact with the cartridge and exploding the left-hand barrel. As the hammer swings forward the cam projection  $k^3$  rides down the cam  $d^3$  and the rear end of the coupler is swung laterally under the impulse of the spring  $l$ , causing the projection  $k^2$  to underlie the projection  $m'$  on the opposite sear  $m$ . A second pull backward on the projection  $h'$  of the trigger  $h$  lifts the sear-tail  $e^3$ , carrying with it the coupler-tail  $k'$ , as before. Owing to this rearrangement of the parts in the operation of the mechanism to explode the left-hand barrel, as described, the lateral projection  $k^2$  on the coupler  $k$  strikes against the overhanging projection  $m'$  as the trigger is pulled, and the sear-tail  $e^3$  is lifted and trips the hammer appurtenant to the right-hand barrel. It will be seen from this that the left-hand barrel is first discharged by the operation of the trigger  $h$  and the right-hand barrel by a second pull on the same trigger. Should it be desired to fire only the left-hand barrel, the gun may be broken down in the usual manner, a new charge inserted in the left-hand barrel, and the piece recocked, when the left-hand barrel may be again fired, as in the first instance. The right-hand barrel may then be fired by the operation of the trigger  $h$  or may be fired in the usual manner by the operation of the rear trigger. By transferring the coupler  $k$  from the sear  $e$  to the sear  $m$  the operation of the device will be exactly the same as before described, with the exception that the right-hand barrel will be first discharged on pulling the trigger appurtenant to that sear. It is to be noted, however, that either barrel may be discharged first by pulling the trigger appurtenant to that barrel.

It is obvious that the movements of the

coupler may be controlled by the hammer appurtenant to the opposite sear from that on which the coupler is pivoted. In either instance that barrel which is appurtenant to the hammer controlling the movements of the coupler will be first discharged.

I claim as my invention—

1. In combination in a firearm, a plural number of hammers, a sear appurtenant to each of said hammers, a coupler mounted on one of said sears and having a lateral swinging movement to engage the under surface of the opposite sear and arranged to engage a cam on one of said hammers, the cam on said hammer to operate the coupler, and a trigger appurtenant to one of said sears.

2. In combination in a firearm, a plural number of hammers, a sear appurtenant to each of said hammers, a movable coupler mounted on one of said sears and adapted to

engage the opposite sear, means for moving said coupler, and a trigger appurtenant to one of said sears.

3. In combination in a firearm having a plural number of hammers, a sear, a coupler pivotally supported on the sear and having a cam arranged in the path of movement of one of the hammers whereby a lateral swinging movement of the coupler into the path of movement of the sear-tail appurtenant to the opposite sear from that on which the coupler is pivoted is produced, a projection from the coupler extending around to the opposite side of and embracing the sear-tail whereby simultaneous vertical reciprocation of the two is produced, and a trigger.

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