(No Model.)

J. RANDALL.

LOCK FOR FIRE ARMS.

No. 289,856. Patented Dec. 11, 1883.

Fig. 1.

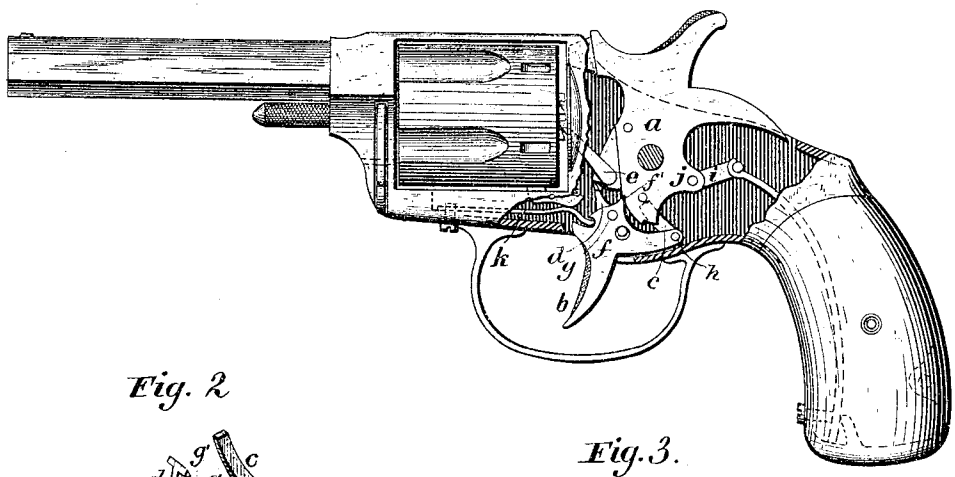


Fig. 2

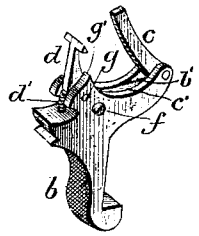


Fig. 3.

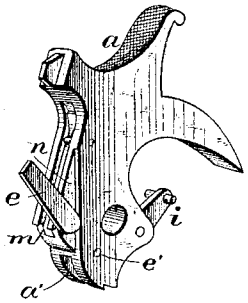
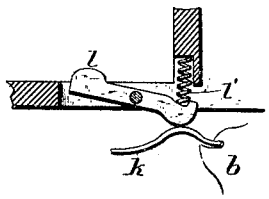


Fig. 4.



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UNITED STATES PATENT OFFICE.

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LOCK FOR FIRE-ARMS.

SPECIFICATION forming part of Letters Patent No. 289,856, dated December 11, 1883.

Application filed June 8, 1883. (No model.)

To all whom it may concern:

Be it known that I, JAMES RANDALL, a citizen of the United States, residing at Norwich, in the county of New London and State of Connecticut, have invented a new and useful Improvement in Double-Acting Fire-Arms, of which the following is a specification.

For convenience I have chosen a pistol to illustrate my invention, although it is equally applicable to a rifle or shotgun.

In the construction of double-acting fire-arms it is almost universally the practice to hitch one end of the lever for lifting the hammer in self-cocking on the back of the trigger, while the other end engages the front part of the hammer, the pry for lifting the hammer being exerted backward from the trigger. This plan of operation has almost universally necessitated the use of an independent sear for use when cocking the arm by the hammer, as in ordinary single-acting arms. In consequence of this there is a marked difference in the sweep of the hammer when raised by the trigger and when raised by the thumb, consequently a lighter blow on the cartridges when operating it as a self-cocker often resulting in their failure to explode. The plan upon which most of the double-acting fire-arms of the present day are constructed necessitates, also, the removal of the lever for revolving the cylinder from the hammer to the trigger, in consequence of the fact that the hammer does not travel the same distance when raised by the trigger as when raised by the thumb. Consequently the cylinder does not revolve to its proper position. The same trouble is found with the stops as used on the single action. Consequently they have been changed to different forms, and many of the double-acting arms of the present day in fact have no positive stop—*i. e.*, a stop holding the cylinder rigid when the hammer is down as well as when it is up. The trigger is likewise placed forward of the hammer, while I place mine beneath, and make it act as a sear, as in the single-acting arms. All these points enumerated necessitate the discarding of many special tools for others and the making of more expensive parts, thus increasing the cost of production, greatly to the detriment of the manufacturer.

In this invention my aim has been to construct a double-acting arm with as little change of the parts as used in the ordinary single-acting fire-arm as possible.

My improvement consists of a new method of applying a lever to the hammer for the purpose of raising the same by pulling the trigger, thus enabling me to place the trigger under the hammer, and using that portion of it for a sear that acts for the sear in a single-acting arm. By this means I am enabled to get the same sweep of hammer when the arm is cocked by the trigger as when cocked by the thumb. Consequently the lever for turning the cylinder always receives the same motion. Likewise the stop is always ready to act positively, whether the hammer is up or down. To bring the motion of the hammer alike from the two methods of cocking it, I have only to cut my full-cock notch and then time the lever to let go at the same instant, and I have accomplished it. I have also a rebounding attachment by which the hammer is thrown to half-cock immediately after falling, and locked in that position, so that the arm is prevented from being accidentally discharged when dropped upon the floor or when the back of the hammer is accidentally knocked against some object. Neither can it become discharged if by chance the hammer should catch upon some object and be swung almost to full-cock and then become disengaged, for upon falling back the half-cocking pawl catches it and holds it in the same position as before. But, now, assuming again that the hammer, under the circumstances above mentioned, did not become disengaged until it reached the full extent of its sweep, the full-cock notch would catch it, and nothing but a pull at the trigger would disengage it. The rebounding attachment is intended to be applied to the arm as manufactured, at the option of the maker. If it is not applied, a half-cock notch is cut in the hammer at the point where the sear touches the hammer when it is at half-cock under the action of the half-cocking pawl.

The following, with reference to accompanying drawings, will explain more fully my invention.

Figure 1 represents a fire-arm with my im-

proved attachment, a portion of the frame being removed to more clearly enable the manner of operation to be understood. Fig. 2 is a perspective view of the trigger with the cocking pawl or lever with its governing-spring, and the rebounding-pawl with its governing-spring pivoted thereon, also showing the sear which would hold the hammer at half-cock were the rebounder or half-cocking pawl removed. Fig. 3 is a perspective of the hammer with the ordinary attachments, also showing the notch in which the rebounder rests after the discharge of the arm, and the slot across the bottom edge of hammer, through which the cocking-lever passes when disengaged from the notch or pin at the bottom of said slot, with which it engages while raising hammer. Fig. 4 is a sectional view of the cylinder-stop, its spring, and part of the trigger-spring engaging the trigger.

Various letters refer to various parts of the arm contained in the several figures 1, 2, 3, 4.

a is the hammer; *b*, the trigger; *c*, cocking-pawl pivoted to the trigger; *c'*, spring governing cocking-pawl; *d*, rebounder-pawl pivoted to trigger; *d'*, its spring to force it into position; *e*, rotating pawl or hand pivoted to the hammer; *f*, pivot of trigger; *g*, pivot of rebounder-pawl; *g'*, sear; *h*, pivot of cocking-pawl; *i*, link or stirrup connecting hammer and mainspring; *j*, joint or pivot of stirrup; *k*, trigger-spring; *l*, cylinder-stop; *l'*, spring of cylinder-stop; *e'*, pin or notch against which the end of cocking-pawl rests when raising or when ready to raise the hammer; *m*, notch in hammer against which rebounding-pawl rests when hammer is at half-cock; *a'*, slot in bottom of hammer, through which cocking-pawl passes, and in which the notch or pin is situated with which the cocking-pawl engages to raise the hammer; *b'*, slot in trigger for cocking-pawl to rock into on its downward motion, and in which the spring *c'*, for controlling the cocking-lever, is placed; *f'*, half-cock notch, which is used when the rebounder is not applied.

Fig. 3 represents the hammer in perspective, with a parallel central slot, *a'*, cut through its bottom portion about half-way to its pivot or pin, and a notch or pin, *e'*, at the base of this slot, and just forward of the center or pivot pin of hammer.

Fig. 2 represents the trigger in perspective, showing the slot *b'*, which is cut parallel and centrally through its upper portion and below the pivot-pin of trigger a sufficient depth to allow the end of spring *c'* to pass under it, so that when the pivot-pin of trigger is in it clamps firmly the one end of spring *c'*. The other end of spring *c'* passes rearward under the cocking lever or pawl *c*, which has a flattened spot on it immediately under its pivot-pin *h*, Fig. 1. The spring *c'*, bearing against this flattened spot, holds the lever *c* always in the same position, except some force be applied to its outer end, when it will rock some distance either way, but upon being released immediately returns to its normal position again. By means of this arrangement of parts with the slots, this upper part of trigger and lower part of hammer, I am enabled to place the trigger, in a double-acting fire-arm, beneath the hammer, as in the ordinary single-acting fire-arm. By so doing I use the sear, stop, and revolving lever essentially the same as they are in the single-acting fire-arm, besides necessitating very slight alterations of the other parts and the addition of very few extra parts. I also get my leverage for raising the hammer by a forward pry with the short arm of the lever.

When the arm is assembled for action, pulling on the trigger *b* brings the point of lever *c* in contact with notch *e'*, Fig. 3, when the lever *c* raises the hammer until the angle of base of slot is in such relation to point of lever as to throw it off of notch *e'*, when the hammer is released and thrown down by the mainspring. We will suppose you have retained the trigger in the position it was when the hammer fell, and such being the case you will find, upon examination, that the lever *c* is mostly under and forward of the notch *e'* and shut down into the slot *b'* in the trigger *b*, much like a knife-blade; but upon releasing your hold upon the trigger the trigger-spring *k* immediately causes the trigger to pull forward, consequently the lever *c* backward, until it rides under the notch *e'*, when it immediately drops into place, ready for action again.

My rebounder attachment is described in the following manner: In the majority of fire-arms as now constructed the hammer rests upon the cartridge, which can be exploded if a sudden blow be applied to the back of the hammer. My object is, in a simple and easy manner, with slight expense and few extra parts to get out of order, to raise the hammer after discharge of arm a short distance from the cartridge and hold it there positively, so that in no way can the arm be discharged except by first cocking it. The distance at which the hammer may be made to rest depends upon the length of the rebounder-pawl and the sweep given it. As the hammer falls the trigger, being relaxed, is thrown up by its spring *k* and the rebounder carried with it. The rebounder meets the hammer at an obtuse angle, and by force of the spring is carried to a straight line, thus lifting the hammer off the cartridge. When the hammer is thus raised by the rebounding-pawl, the notch *m* of the hammer, the rebounder *i*, and its pivot *g* are in a straight line, and if extra force be exerted something must break before the hammer can fall. It is somewhat like the "dead-point," so called, when a pitman is turning a wheel on journal, in which instance no amount of force can move an engine until the wheel or journal is moved by hand beyond the dead-point. The half-cocking pawl or rebounder *d* being pivoted to the trigger *b* in front of the pivot *f* of trig-

ger, it follows that when the trigger is pulled in cocking the hammer said pawl is carried downward with that part of the trigger to which it is attached, and when the trigger is released after the hammer has fallen it is returned by its spring *k* to its normal position, carrying with it the pawl *d*, which engages a notch, *m*, on the front part of the hammer, and forces the latter back far enough to take its nose out of contact with the cartridges in the cylinder. The pivot *g* of the half-cocking pawl *d* is in front of and above the pivot of the trigger, in such a position that when the trigger has been returned to its normal condition by its spring it will be brought practically into line with the nose of the pawl *d* and the pivot of the trigger, and any forward pressure upon the hammer will therefore be met by a straight resistance, which will prevent movement, so that the hammer cannot be brought against the head of the cartridge. Said pivot *g* being also near the pivot of the trigger, a strong leverage is afforded, by which a trigger-spring of ordinary strength is sufficient to overcome the strength of the mainspring. The hammer, or, rather, the tumbler, is provided with a full-cock notch, with which the sear or nose of the trigger engages, when the hammer is cocked, by the pressure of the thumb upon its comb, or when it is not designed to use the arm as a self-cocker. Likewise, when the arm is constructed without the rebounding attachment, a half-cock notch is substituted.

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

1. The combination of a hammer having a slot in its lower part, said slot having a pin serving as a shoulder, in combination with the trigger provided with a cocking pawl or lever, *c*, engaging said pin or shoulder, as and for the purposes set forth.

2. The combination of a hammer having a slot in its lower part, said slot having a shoulder, a trigger with a grooved or slotted rear extension, a spring in said slot or groove, and a cocking pawl or lever pivoted in the rear part of said slot and held in operative position by said spring, whereby said pawl is adapted to fold into said slot on the return of the parts to their normal position after firing, as and for the purposes set forth.

3. In a lock for fire-arms, and in combination with the hammer thereof, the cocking pawl or lever pivoted to a rear extension of the trigger, and having a flattened part below its pivot, the trigger, and a flat spring secured thereto and bearing against said flattened part, to hold the pawl or lever in proper operative position, all substantially as and for the purpose set forth.

4. The combination of a pivoted trigger, a pawl pivoted thereto in front of its pivot, a trigger-spring, and a hammer provided with a notch or shoulder on its forward face, with which said pawl engages to throw the hammer back when the trigger is released, as and for the purposes set forth.

JAMES RANDALL.

In presence of—
ALONZO H. HARRIS,
AMOS C. CUTLER.