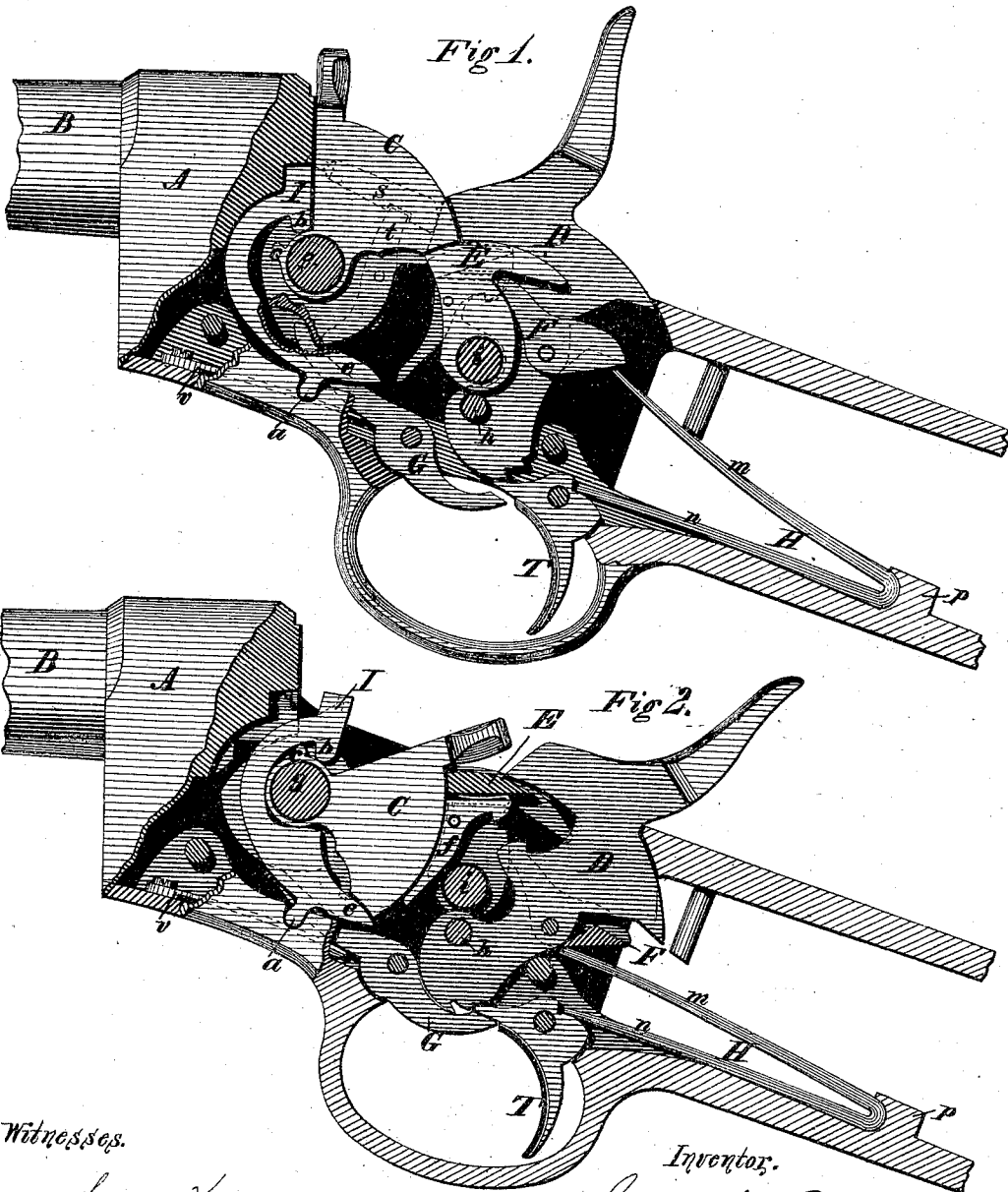


J. RIDER.
Breech-Loading Fire-Arms.

No. 141,384.

Patented July 29, 1873.



Witnesses.

Harry King.
H. H. Dodge.

Inventor.

Joseph Rider.
by Dodge & Son
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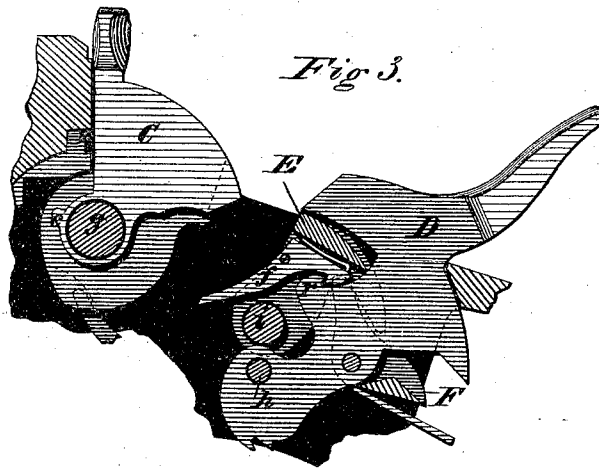


Fig 5.

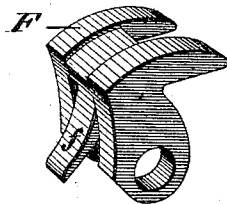


Fig 6.



Fig 7.

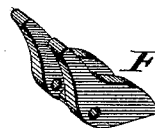
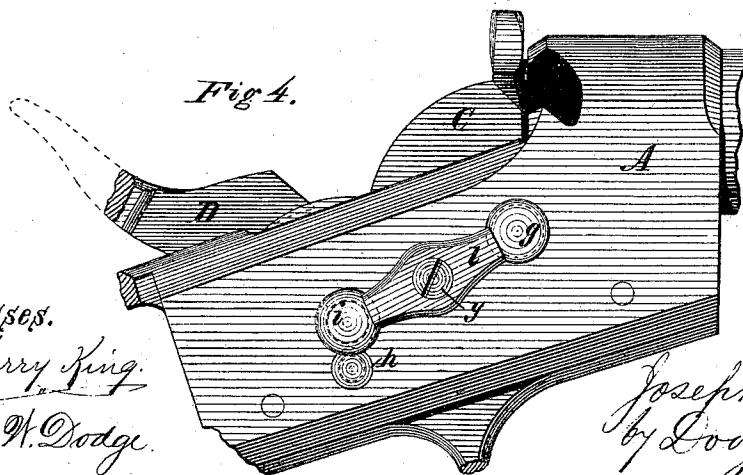


Fig 4.



Witnesses.

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UNITED STATES PATENT OFFICE

JOSEPH RIDER, OF NEWARK, OHIO.

IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. **141,384**, dated July 29, 1873; application filed October 24, 1872.

To all whom it may concern:

Be it known that I, JOSEPH RIDER, of Newark, in the county of Licking and State of Ohio, have invented certain Improvements in Breech-Loading Guns, of which the following is a specification:

My invention consists in certain devices of novel construction and arrangement in the breech mechanism of breech-loading guns made on the general plan of the well-known Remington gun, whereby the breech-piece is securely locked by the act of closing it; the locking-brace being withdrawn again in the act of cocking the gun; the trigger locked in its notch while the breech is open; and the extractor is operated, first, by a positive motion, and afterward has imparted to it an accelerated movement; together with other details, all as hereinafter more fully explained.

Figure 1 is a side elevation of the breech mechanisms in the position they occupy when the gun is fired. Fig. 2 is a similar view, showing the breech opened. Fig. 3 represents the breech closed, and the hammer at full-cock. Fig. 4 shows the reverse side of the receiver or frame; and Figs. 5, 6, and 7 show portions detached.

The receiver or frame A, with the barrel B and breech-piece C, I make as in the ordinary Remington gun. The extractor I consists of a flat piece of metal of a semicircular form, as shown in Figs. 1 and 2, and is set loosely into a recess made for it under and in front of the pivot of the breech-piece, it resting and turning at its lower edge on a projection, *a*, which fits into a cavity made for it in the bottom or guard piece of the frame. At its upper end it is provided with a downwardly-projecting lip, *b*, which is arranged to engage with a corresponding hook or projection, *c*, on the hub of the breech-piece C, as shown in Figs. 1 and 2, so that as the breech-piece C is opened it will engage with the extractor and start the shell by a steady and strong pull. In rear of the pivot or rocking stud *a* the extractor is extended backward, and terminates in a tail-piece, *e*, which is so located that when the breech-piece is nearly opened the latter will strike upon this tail-piece *e*, and give to the head of the extractor a sudden and accelerated movement, for the purpose of throwing the

shell entirely out of its chamber. The hammer D, instead of being made in the usual form, is constructed without the locking-shoulder peculiar to the Remington gun, and is pivoted further down on a pin, *h*, and has pivoted to it a lever, F, which is shown detached in Fig. 7. In front of the hammer I pivot an independent swinging locking shoulder or brace, E, as represented in Figs. 1, 2, and 3, it being shown detached in Fig. 5, this brace E and the lever F both being cut out at their center so as to straddle the hammer. In the front portion of the brace E I pivot a catch, *f*, which has its upper rear end arranged to hook onto a corresponding catch, *r*, formed on the front side of the hammer, as shown in Figs. 2 and 3, this catch *f* having its lower end arranged to project out in front of the brace E so as to be hit by the breech-piece C when opened, and thus disengaged from the hammer, a spring being arranged to cause the catch *f* to engage with the catch on the hammer when the two are brought into proper position, as shown in Fig. 3. In the lower part of the receiver I pivot a lever, G, the rear end of which is brought under the nose of the trigger, while its front end comes underneath the hub of the breech-piece C, against which it is pressed by a spring, *v*, as shown in Figs. 1 and 2. The breech-piece, on the under side of its hub, is so shaped that when the breech is closed the front end of lever G is permitted to rise, thereby removing its rear end from contact with the nose of the trigger, and, of course, permitting the latter to be pulled out of the notch of the hammer; but when the breech-piece is opened the cam on its lower side strikes on the front end of lever G, thereby throwing up its rear end against the trigger, and thus locks the trigger in its notch in the hammer.

As the breech-piece is closed, the front end of the lever G, by pressing on the front face of the cam or incline, holds the breech shut; and when the breech is opened, the lower end of the firing-pin lever *t* strikes upon the front upper part of lever G, and thereby draws back the firing-pin *s*; this lever G thus performing the fourfold operation of holding the breech-block closed, locking the trigger in the half-cock notch, also in the full-cock notch,

and serving to operate the retracting-lever *t* of the firing-pin as the breech is opened. This last operation is incidental to the location of the lever *t*, that retracts the firing-pin, which I do not claim as my invention, this special combination of the lever *G* and the lever *t* having been previously devised by W. S. Smoot.

The mainspring *H* is formed with its two arms, *m* and *n*, of equal size and strength, its lower arm being arranged to bear upon the trigger at a point so nearly over its center that the trigger can be pulled with no more power than was formerly required when a much weaker spring was used. This spring is secured in place by having its rear end set into a notch on the front side of a lug, *p*, formed on or secured to the lower tang, and the front end of its lower arm *n* resting in a recess in the upper side of the trigger *T*, as shown in Figs. 1 and 2, no screw or other fastening being required. The upper arm of the spring *H* bears against the under face of the lever *F*, while the front end of the latter bears against the rear curved face of the locking-brace *E*, as shown in Fig. 1, the point of the spring changing its bearing-point on the lever *F* from near its rear end when the hammer is down, as shown in Fig. 1, to near its center when the hammer is cocked, as shown in Fig. 3, the pressure of the front end of the lever *F* being correspondingly changed.

I secure the three pins *g*, *h*, and *i*, upon which are pivoted the breech-piece *C*, the locking-brace *E*, and the hammer *D*, all in place, by means of a single screw, as shown in Fig. 4, thus avoiding the cutting of screw-threads on these three pins and in the receiver. To do this I first put in the pin *h*, then arrange the pin *i* so its flange or head will rest over or upon the pin *h*, and then secure both the pins *h* and *g* in place of the button *l*, which, in turn, is held in place by the screw *y*, this button with the two pins *g* and *i* having been fully described in a patent previously granted to me therefor.

From the above description it will be seen that when the hammer is drawn back, as shown in Fig. 3, the locking-brace *E* is drawn back with it, thus leaving the breech-piece *C* free to be opened, and that when the latter is opened its rear edge will strike upon the projecting end of the catch *f*, disengaging it from the hammer, so that when the breech-piece is closed again the brace *E* is pressed forward by the lever *F*, which in turn is acted

upon by the spring-arm *m*, thus causing the brace *E* to engage under the rear shoulder of the breech-piece *C*, as represented in Fig. 1, thereby locking it securely in place, while the hammer remains at full-cock, or at half-cock, as the case may be. When the hammer is let down, as in firing the gun, the brace *E* is locked by the catch *f* to the dog, so that when the hammer is again cocked it draws back the brace with it, as shown in Fig. 3, ready for the breech to be again opened.

It will thus be seen that all these various operations, together with those of operating the extractor, and giving to it an accelerated movement, and the locking of the trigger in its notch, and subsequently releasing it, are all effected by the motions of the two pieces, the breech-piece and the hammer; and that thus the gun is rendered much more secure and perfect without adding at all to the motions heretofore required for its manipulation or use.

Having thus described my invention, what I claim is—

1. The extractor *I*, provided with the projection *a*, fitted in the recess, whereby a pivot-pin is dispensed with and the extractor made to operate as described.

2. The lever *G*, arranged as described in relation to the breech-piece *C* and the trigger *T*, whereby it is made to lock the trigger in the half and full cock notches, hold the breech-piece closed, and serve as a cam or incline to operate the firing-pin retracting-lever *t*, as set forth.

3. The locking-brace *E*, mounted on a pivot independent from that of the hammer, and provided with a catch to engage with the hammer, in combination with the swinging breech-piece *C* and hammer *D*, all constructed and arranged to operate substantially as described.

4. The lever *F*, pivoted to the hammer, and arranged to have its front end bear against the independent locking-brace *E*, and its rear end forming the bearing for the mainspring, all constructed and arranged to operate substantially as described.

5. The arrangement of the pins *h*, *i*, and *g* with the button *l* and screw *y*, whereby the three pins are all held in place by means of a single screw, and all the pins still be free to turn in their bearings, substantially as described.

Witnesses:

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CHAS. R. DARBY.