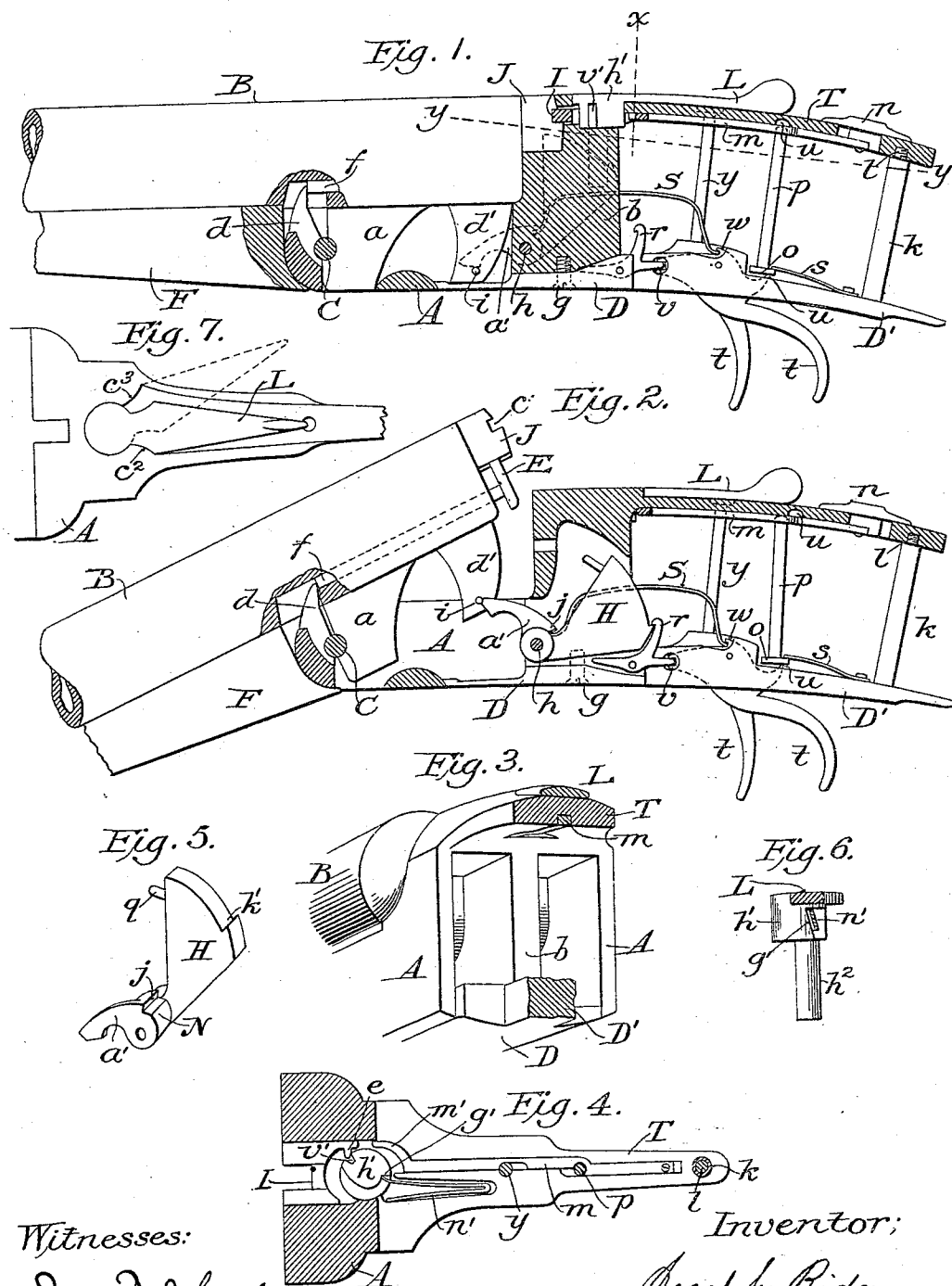


(No Model.)

J. RIDER.
BREECH LOADING GUN.

No. 500,949.

Patented July 4, 1893.



Witnesses:

James F. DeChamuel
Horace A. Dodge.

Inventor:

Joseph Rider,
by Dodge & Sons
Attys.

UNITED STATES PATENT OFFICE.

JOSEPH RIDER, OF NEWARK, OHIO.

BREECH-LOADING GUN.

SPECIFICATION forming part of Letters Patent No. 500,949, dated July 4, 1893.

Application filed February 6, 1893. Serial No. 461,089. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH RIDER, a citizen of the United States, residing at Newark, in the county of Licking and State of Ohio, have
5 invented certain new and useful Improvements in Breech-Loading Guns, of which the following is a specification.

My present invention relates to that class of breech loading guns which are known as
10 break-down, hammerless guns, used for sporting purposes, and the invention consists in a novel construction of the frame, of the automatically cocking hammers with their tumblers and cocking levers, a novel arrangement
15 of the cocking levers in relation to the lug and pin on the barrels, a novel arrangement of the hammers, sears, triggers and main springs, a peculiar construction of the locking lever stud and its spring, and of the
20 automatically operated safety device, all as hereinafter set forth.

Figure 1 is a side elevation shown partly in section, to more clearly illustrate the construction of the mechanism, with the barrels closed. Fig. 2 is a similar view, showing the
25 position of the parts when the barrels have been tipped and the breech open. Fig. 3 is a rear perspective view of the frame, and a portion of the trigger plate in position. Fig.
30 4 is a longitudinal horizontal sectional view of the breech frame, on the line $y-y$ of Fig. 1, and showing the upper tang and its attachments, looking from below upward. Fig. 5 is a perspective view of one of the hammers
35 and its cocking arm, shown detached. Fig. 6 is a transverse vertical section of the thumb-lever on the line $x-x$ Fig. 1, and showing its hub as viewed from the rear, and Fig. 7 is a top plan view of a portion of the frame and thumb lever.

In the drawings A indicates the breech frame of the gun, it being composed of a single solid block of metal, with two chambers
45 for the reception of the hammers cut in its rear face, as shown more clearly in Fig. 3. It will be seen that by this construction, the front or recoil wall of the breech, the top, both side walls and the central partition b , are all formed of one solid continuous piece
50 of metal without any joints, thus dispensing with the usual side openings and lock plates, and at the same time securing solid bearings

at both sides and at the center for the screw or pin h which serves as a journal for the two hammers, one in each of the chambers 55 or recesses. An opening or recess is formed in the bottom of this frame, in which is fitted a trigger plate D as shown in Fig. 3, the rear end of this plate being prolonged to form a lower tang D' , a corresponding upper tang T 60 being formed by a prolongation of the solid top wall of the frame A, the form of this upper tang being shown in plan in Fig. 4, and sectional side view in Figs. 1 and 2. The trigger plate is fastened in its seat between 65 the side walls by a screw g , which enters the lower edge of the central partition b as shown in Fig. 1, and a screw y connects the trigger plate to the upper tang about midway of their length, while at their rear ends the two tangs 70 are connected by another screw l which is encircled by a sleeve k , the ends of which abut against the inner faces of the tangs, thereby holding them the same distance apart, however much the wooden stock may shrink. 75 By these means all the working or movable parts of the mechanism secured to the frame, trigger plate and tangs, are always kept in the same relative positions, thus greatly reducing the liability of the mechanism getting 80 out of order.

The front wall of the frame which serves as a recoil plate and to close the rear end of the barrels, has a small hole for the point q of the hammer to strike through opposite each barrel, as shown in Fig. 2; the point of the hammer being made in the form of a pin so as to avoid cutting away the metal at that point; and as this front wall is firmly supported by the central partition and the solid side walls, 90 it can be made comparatively thin, and yet have the necessary solidity and strength to render it perfectly safe.

The frame A is provided with the usual front arm to which the barrels B are hinged 95 by a transverse pin C, and a lug a on the under side of the barrels, which has a semicircular recess in its front edge to engage on the pin, and permit the barrels to be removed from the frame when the fore-arm F is detached. 100

In the front portion of the front arm of the frame I cut a vertical recess in which I fit a detachable stud d , which as shown in Figs. 1

and 2 is provided on its front face with a shoulder, and on its rear face with a recess or notch, so that when set in place, and the hinge pin C is put in, this stud is firmly secured in place. It is located centrally so as to come opposite the end of the extractor stem *f*, which comes in contact with the stud when the barrels are tipped as shown in Fig. 2, thereby operating the extractor plate E.

By making this stud separate, the parts are easier machined, thus saving time and expense, besides enabling it to be readily replaced in case of accident.

In order to dispense with the usual guide pin and insure an accurate movement of the ejector plate E, I form in the upper edge of the same a rectangular notch, which engages with a correspondingly shaped rib on the under side of the projection J at the rear ends of the barrels, as shown in Fig. 2.

To the barrels at or near their rear ends I secure a second lug *d'*, and through this I insert a pin *i*, which is arranged to engage with the cocking arms *a'* of the hammers, so that when the barrels are tipped this pin will raise the arm *a'* and thereby throw the hammers back to the cocked position, the hammers thus being cocked automatically by the tipping of the barrels.

The hammer H, with its cocking arm *a'* and the tumbler N with its shoulder *j*, on which the main spring acts, are all formed of a single solid piece of metal, of the form shown in Fig. 5, in which it is shown detached, and in position in Fig. 2.

The arm *a'* is curved and near its end, its lower face is provided with a flat or straight surface, which as will be seen by examining Fig. 2, is arranged at a right angle to the front or perpendicular face of the hammer, while its front end is beveled so as to form an angle of about forty-five degrees, more or less, to the vertical face of the hammer. These parts of the arm *a'* are so located in relation to the pin *i* in the lug *d'*, that when the gun is closed the pin *i* will be just under the rear part of the flat or horizontal face of the arm *a'*, as shown in Fig. 1, and so that as the barrels are dropped the pin *i* engaging the arm *a'* will raise it, the pin sliding along the horizontal face of the arm until the hammer is forced back to the cocked position, at which time the pin will have passed from the horizontal to the beveled or inclined end of the arm, and which by the upward movement of the arm will have been brought to a perpendicular or vertical position directly in rear of the pin *i*, as shown in Fig. 2, and by which the firing of the gun accidentally or otherwise is absolutely prevented, for even if the triggers be pulled and the hammers released, they cannot move while the barrels are tipped. If however, it be desired to uncock the hammers, it is only necessary to tip the barrels, then pull the triggers and gradually bring the barrels to the closed position, the hammers of course moving with the barrels and coming gently to the uncocked posi-

tion. This arrangement of the lifting pin *i* in relation to the cocking levers *a'* permits the barrels to be detached from the frame, and be replaced, without detaching any of the parts, except the fore end of the stock.

Each hammer H is provided on its top with a notch or shoulder *k'* with which the sears *v* engage when the hammers are thrown back by the tipping of the barrels as above described, and as shown in Fig. 2. The sears *v* are made in the form of an elbow lever, their rearwardly extending arms engaging in a notch *v* in the front end of their respective triggers *t*, *t*, which are pivoted in the rear thereof in the trigger plate, as shown in Figs. 1 and 2. The triggers are each provided on their upper edges with a notch *w*, in which rests the rear end of the main spring S. the front end of said spring engaging and bearing against the shoulder *j* on the upper rear side of the tumbler N, which as shown in Fig. 5, is located between the cocking arm *a'* and the hammer H, and as previously described, the arm *a'*, the tumbler N and hammer H are all made of a single solid piece of metal, though if preferred they may be made separately and then be rigidly connected and be made to operate the same; but I prefer the plan described.

The main spring consists of a single flat piece of steel, with its rear and front portions bent or curved downward and having its extreme ends curved or bent to the proper shape to engage at the front end in the notch *j* of the tumbler, and at the rear end in the notch *w* of the trigger, as shown clearly in Fig. 2. By this arrangement it will be seen that the single spring S is made to serve in a three-fold capacity, as a main spring, a trigger spring, and as a sear spring, it acting directly on the tumbler and trigger, and indirectly on the sear by its connection with the trigger as previously described. This form of spring also gives an easy elastic movement to the parts, is much simpler and cheaper to make, and far less liable to break in use than the ordinary folded or two-leaved main springs in general use.

In order to provide a safety attachment or means of locking the triggers so that the gun cannot be fired until released, I locate over the rear portion of both triggers a small plate *o* which is secured to the lower end of a vertical pin *p*, the upper end of which when the triggers are in their normal position, rests against the under side of the upper tang T, thereby locking or holding the triggers fast, and preventing their being moved, the safety pin *p* then being in the position shown in Fig. 2. A recess *u* is formed in the tang just in rear of the position where the end of pin *p* bears against it so that by moving the upper end of the pin *p* back opposite the recess, the triggers can be pulled, as then the end of the pin is free to pass up into this recess *u*, as shown in Fig. 1, which shows the top of the pin thus drawn back under the recess, ready

to rise. In order to move the pin from one position to the other, I use a small sliding bar *m*, which fits in a recess or groove in the under face of the tang *T*, as shown more fully in Fig. 4, the upper end of pin *p* resting loosely in a hole or recess in the bar *m*, so that as the bar is moved forward or back the upper end of the pin is carried with it. At the rear end of this bar *m*, a slot is cut through the tang *T*, and the bar is there connected to a slide or thumb-piece *n* which rests on the top of the tang, and has a neck fitting in the slot, this slide or thumb-piece *n* being connected by a screw to the end of the bar *m*, as shown in Fig. 2.

A small spring *s* is fastened to the tang *D'* in rear of the locking pin *p* with its free end resting on the transverse plate *o*, to hold the pin down, except when raised by the triggers, and to insure its return to that position after it has been raised, so that its upper end can be shoved forward under the tang to lock the triggers. If preferred, a spiral spring on the pin *p* may be substituted for the flat spring *S*, it either extending the whole length of the pin, or by forming the latter with a shoulder at any desired point, a shorter spiral spring may be used. In order to secure a free and easy movement of the pin, the portion of the triggers which come in contact with the plate *o*, is curved upward and terminates in a point, as shown in Figs. 1 and 2; and by making a small cavity in the plate *o* for these points to rest in, the plate *o* with the lower end of pin *p* is held in place and prevented from moving forward or back, these points also serving as pivots on which the plate *o* rests while the upper end of the pin is moved forward or back. It will readily be seen that by merely shoving the thumb piece *n* forward the triggers will be locked, and by sliding it back they will be unlocked. In order however, to have the gun always in condition to be fired the instant the barrels are closed, (and which is very important in sporting guns,) I extend the sliding bar *m* forward beyond the pin *p*, and provide its forward end with a curved arm *m'* to pass around or alongside of the hub *h'* of the locking thumb lever *L*, where it will be struck by the rear end of the sliding latch *I* which by its engagement in the notch *c'* of projection *J* locks the barrels when closed,—this curved arm *m'* and the sliding latch *I* being shown in Fig. 4, in the positions they will occupy when the gun is closed and ready to fire.

The latch *I* is made in the form shown in Fig. 4, it being fitted in a slot cut in the upper part of the breech frame as shown in Figs. 1 and 4. The central and shorter portion of the latch *I* is the part which engages in the notch *c'* and locks the barrels fast, while the longer side portions serve as guides which work in recesses at the sides of the recess in which the projection *J* fits, thereby preventing the latch from cramping or binding in its seat as it otherwise might because of its shortness, and insures a free and easy movement of the same.

As shown in Fig. 4, one side of this latch *I* is extended back alongside of the hub *h'* and is provided with a tooth *e* arranged to engage in a recess *r'* in the side of the hub, so that as the hub is turned by moving the thumb lever *L*, the latch is drawn back, unlocking the barrels—the rear end of its projection striking the front end of the sliding bar *m'* thereby shoving the bar *m* and the safety pin *p* back to the position shown in Figs. 1 and 4, thus leaving the gun in condition to be fired without waiting to move back the safety slide or thumb piece *n*. The safety device can be put into position for locking the trigger at any time by merely shoving the slide *n* forward, and the triggers can be unlocked at any time by shoving it back by the thumb; but in case it is left shoved forward when the gun is to be opened, it will be automatically shoved back by the act of unlocking the barrels, so that the gun is ready to fire the instant it is closed, which I consider a very important feature of my invention. The thumb lever *L* with its hub *h'* is also formed of a single solid piece of metal thereby dispensing with joints and screws generally used in their construction. A central stem or pin projects from the lower side of the hub *h'* and fits in a vertical hole in the partition *b*, and serves as a journal. An inclined shoulder *g'* is formed on one side of the hub as shown in Fig. 6 against which the free end of a bent spring *n'* bears, this spring being set in a recess in the under side of the tang *T*, as shown in Fig. 4. It will be observed by examining Fig. 6 that the end of the spring which bears against the inclined shoulder *g'* is correspondingly inclined, and which is effected by slightly twisting that leaf of the spring near its end. The result of this arrangement is, that when the hub is inserted in its recess and the inclined end of the spring bears against the inclined shoulder of the hub, the spring always acts to hold the hub down in its seat, and thus I am enabled to hold the thumb lever *L* with its hub and journal securely in place without the aid of any other fastening. To put the thumb lever in place, it is only necessary to shove back the end of the spring slightly, or turn the lever back far enough to enable the lower end of the inclined shoulder to pass down far enough to engage the spring very slightly, when it can be pushed home to its seat, and by reversing the operation it can be as readily removed whenever necessary. It will be seen that the spring *n'* operating on the shoulder *g'* acts on the lever *L* to throw it back to its normal position in line with the tang, as soon as it is released after it is moved to the position shown in dotted lines in Fig. 7, to unlock the barrels; and as it is necessary to limit its movement in order that it shall impart to the latch and the safety bar *m* and the pin *p* exactly the required movement, so as to bring the end of the safety pin exactly opposite the recess *u*, without which the gun cannot be fired. I seat the lever *L* in a recess formed

in the top surface of the frame as shown in Fig. 7. This recess is made of just the width necessary to allow the proper movement of the lever, and no more, the shoulder c^2 limiting its movement in one direction, and the shoulder c^3 serving as a stop to limit its movement in the opposite direction, as shown in Fig. 7.

The end of the projection J with which the latch I engages, is beveled or inclined, as shown in Fig. 2, so that as it strikes the latch in closing the barrels, it will automatically force the latter back; and as the latch is connected with the hub of the lever, and as the spring n' bears against the shoulder g' of the hub, it follows that the lever is moved outward and the latch backward striking the sliding bar m and thus automatically moving the end of the safety pin p to a position opposite the recess u , by the act of closing the barrel, in case the safety pin has been moved forward while the barrels are open.

If the safety pin has been moved forward while the barrels were closed, it can be moved back by the slide n , or if not, it will be moved back by the movement of the lever L in unlocking the barrels. In either case, the gun is in condition to be fired the instant the barrels are closed.

I am aware that various forms of safety devices have been used to lock the triggers, but I am not aware that any has before been arranged to be thrown out of action by the unlocking of the barrels, or by the closing of the same. I am also aware that the thumb lever has been set in a recess on the top of the frame, but I am not aware that such recess has been provided with shoulders or stops arranged to limit the movement of the lever as in this case.

I am aware that self cocking guns, and various forms of safety devices have before been made, and therefore I do not claim such broadly, but I am not aware that any has before been devised like mine, and therefore

What I claim is—

1. A frame for a double barreled break down gun, composed of a single piece of metal, and having in connection with the recoil shoulder, top and side walls, a pendent partition b centrally located and extending from top to bottom and rearwardly equidistant with the side walls or nearly so, whereby a separate chamber is formed for the reception of each of the hammers and its adjuncts, substantially as shown and described.

2. The hammer H provided with the later-

ally projecting tumbler and a cocking lever rigidly secured to the tumbler at the opposite side from the hammer, whereby, when the nose of the hammer is in line with the center of the barrel, the cocking lever is brought near the center of the frame as shown and described.

3. The combination in a tip barrel gun of the barrels provided with a lug d having the pin i or similar projections at its sides, with the hammers H provided with the cocking arms a' , the said parts being arranged in relation to each other substantially as shown and described, whereby, when the barrels are tipped the pin is caused to first cock the hammers, and when cocked to bear against the front ends of the arms a' , as set forth.

4. The combination of the hammer provided with the laterally projecting tumbler N having a notch j above its axis, the sear r and trigger t connected by an articulated joint as shown, and the flat bowed spring S having its front end engaged in the notch of the tumbler and its rear end bearing against a shoulder on the trigger above or in rear of its axis, all arranged and operating substantially as shown and described.

5. The thumb lever L provided with the hub h' having a recess r' in its side, in combination with the sliding latch I provided with a rearwardly extending arm carrying a tooth or projection e arranged to engage in said recess of the hub, and a spring arranged to operate on the hub and throw the latch forward to lock the barrels when the lever is released, as set forth.

6. The thumb lever L provided with a hub having an inclined shoulder g' formed thereon, in combination with a spring n' having its end inclined and arranged to bear on said inclined shoulder, substantially as and for the purpose set forth.

7. In combination with the safety pin p arranged to lock the triggers, the sliding bar m provided with the front extension m' , and the sliding latch I arranged to bear against the extension m' and automatically move the safety pin back to the unlocked position by the movement of the thumb lever to unlock the barrels, or by the closing of the barrels, substantially as shown and described.

In witness whereof I hereunto set my hand in the presence of two witnesses.

JOSEPH RIDER.

Witnesses:

JOHN M. SWARTZ,

DAVID A. ALLEN.