

(No Model.)

3 Sheets—Sheet 1.

M. BYE & E. G. PARRY.
SAFETY DEVICE FOR BREAKDOWN GUNS.

No. 495,298.

Patented Apr. 11, 1893.

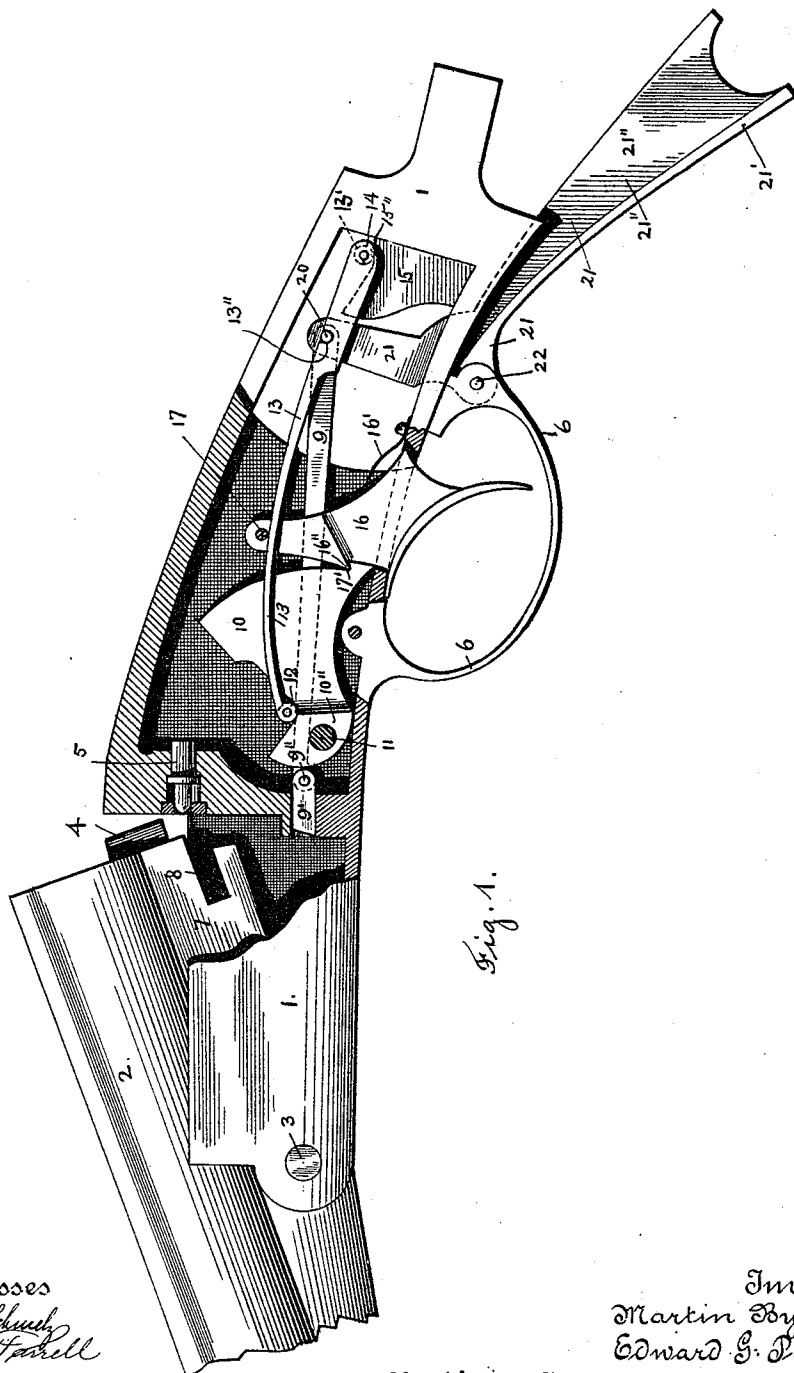


Fig. 1.

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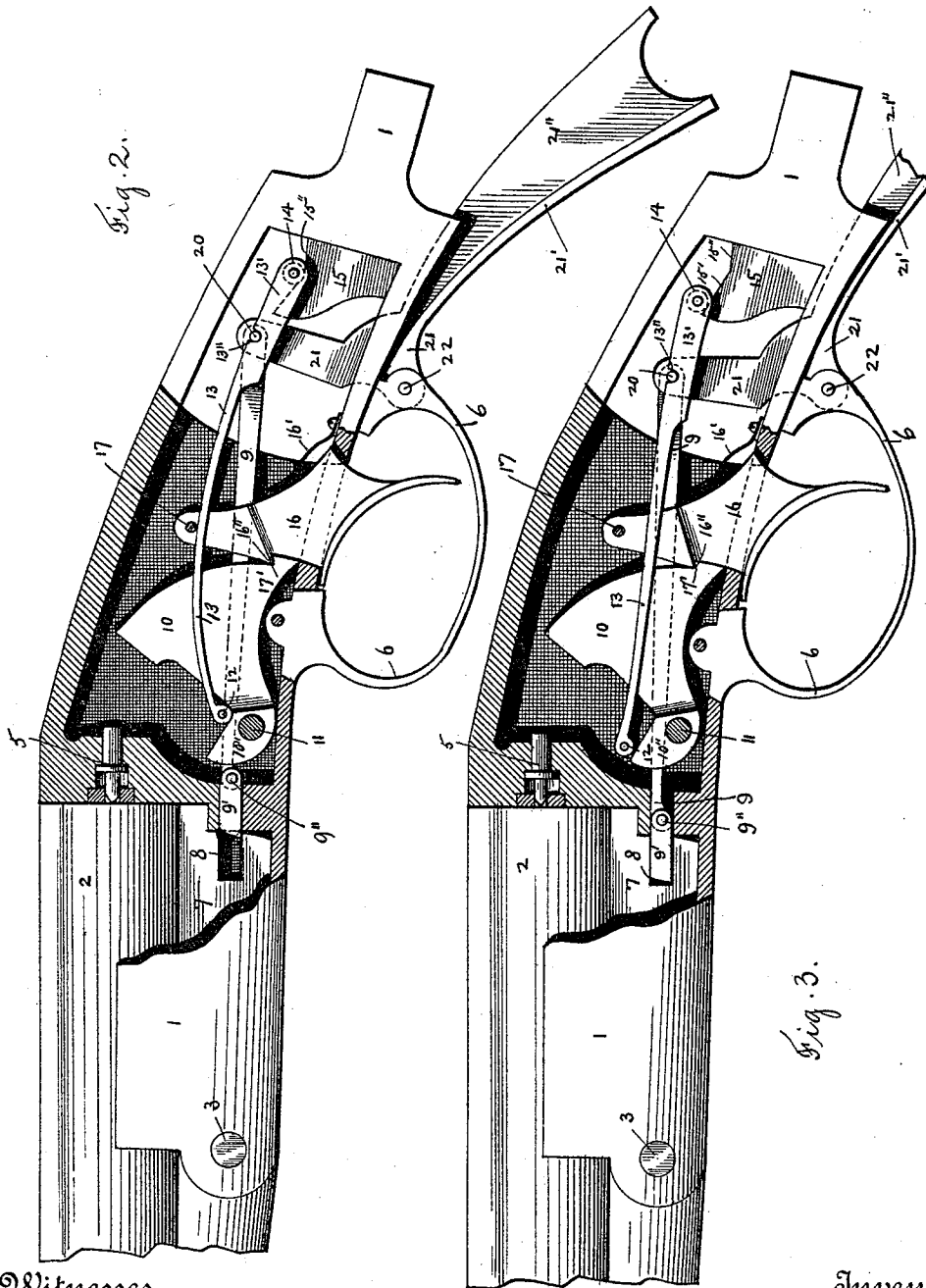
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SAFETY DEVICE FOR BREAKDOWN GUNS.

No. 495,298.

Patented Apr. 11, 1893.



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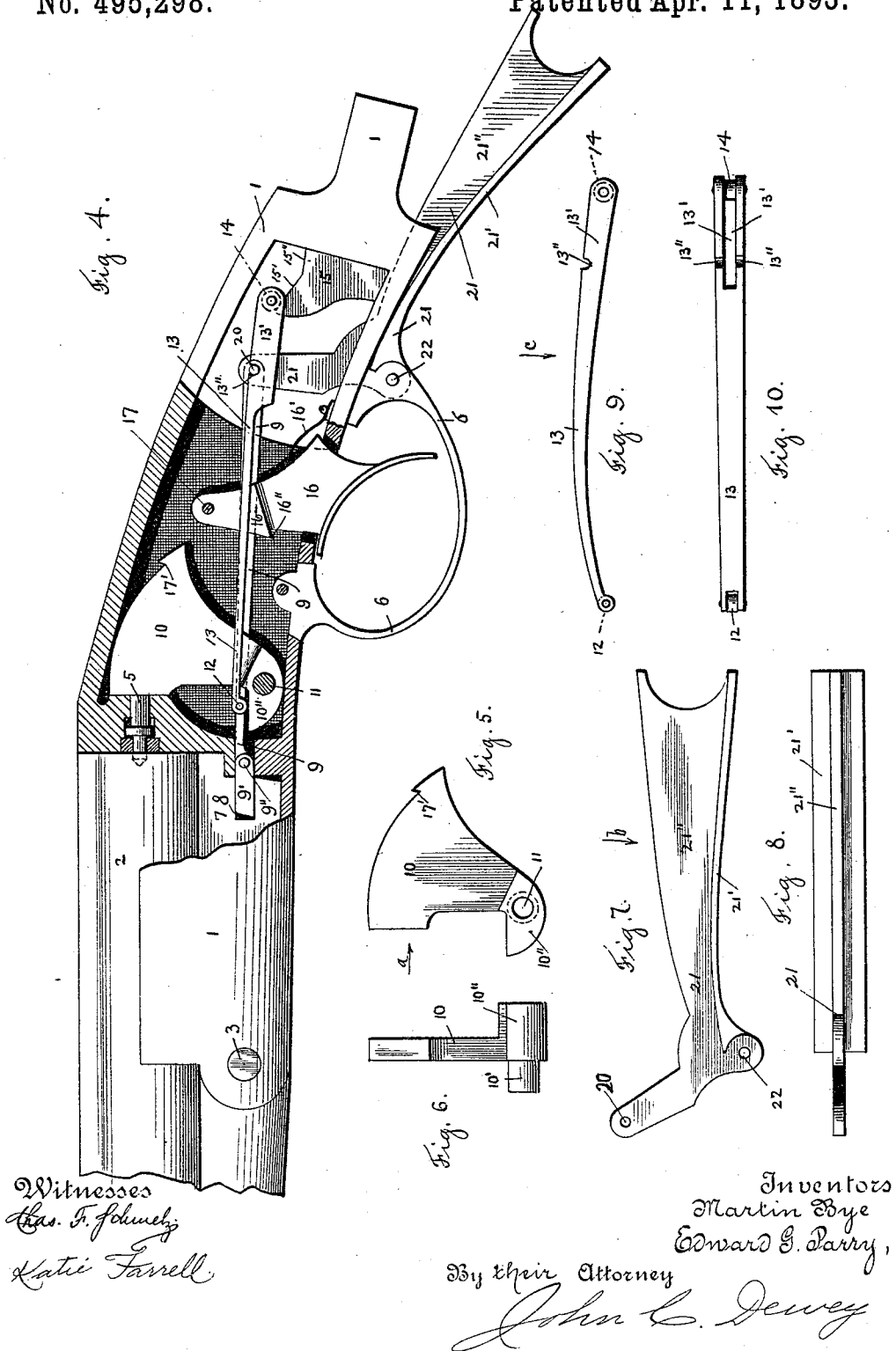
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UNITED STATES PATENT OFFICE.

MARTIN BYE AND EDWARD GEORGE PARRY, OF WORCESTER,
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SAFETY DEVICE FOR BREAKDOWN GUNS.

SPECIFICATION forming part of Letters Patent No. 495,298, dated April 11, 1893.

Application filed November 17, 1892. Serial No. 452,257. (No model.)

To all whom it may concern:

Be it known that we, MARTIN BYE and EDWARD GEORGE PARRY, citizens of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Firearms; and we do hereby declare that the following is a full, clear, and exact description thereof, which, in connection with the drawings making a part of this specification, will enable others skilled in the art to which our invention belongs to make and use the same.

Our invention relates to breech loading fire-arms, and more particularly to that class of fire-arms termed, "break down hammerless guns," and the object of our invention is to improve upon, and simplify the construction of breech loading fire-arms of the class above referred to, and more particularly to make a fire-arm provided with a supplemental safety attachment, combined with the hammer main spring, to prevent the premature or accidental discharge of the gun by pulling the trigger.

Our invention consists in certain novel features of construction and operation of a breech loading fire-arm, and more particularly in combining with the frame of the gun an external safety lever combined with the main spring of the hammer, in such a manner as to prevent the operation of the hammer by pulling the trigger, except by pressing in the safety lever, and also in combining with the safety lever a locking bolt for securing the barrel portion to the stock, and doing away with the ordinary top snap lever for that purpose, as will be hereinafter described.

We have shown in the drawings our improvements applied to a single barrel gun, but they may be equally well applied to, and used in connection with a double barrel gun if desired.

Referring to the drawings:—Figure 1 is an elevation, partly in section, of a portion of a gun with our improvements applied thereto, the barrel portion being partially broken down, and showing the position of the cocking and firing mechanism after the gun has been fired, and re-cocked. Fig. 2 corresponds to Fig. 1, but shows the barrel portion locked to the frame, preparatory to firing. Fig. 3

corresponds to Fig. 2, but shows the safety lever pushed in, and the hammer main spring in position to operate the hammer upon the pulling of the trigger. Fig. 4 corresponds to Fig. 3, but shows the position of the hammer after the gun has been fired, previous to the cocking of the hammer by the action of the main spring, and the unlocking of the barrel portion to break down the gun. Fig. 5 is a side view of the hammer detached. Fig. 6 is a front edge view of the hammer, looking in the direction of arrow *a*, Fig. 5. Fig. 7 is a side view of the safety lever detached. Fig. 8 is a plan view, looking in the direction of arrow *b*, Fig. 7. Fig. 9 is a side view of the hammer main spring. Fig. 10 is a top view, looking in the direction of arrow *c*, same figure.

We have shown in the drawings only such portions of a breech loading fire-arm as are necessary to fully illustrate the nature of our improvements applied thereto.

In the accompanying drawings, 1 is the frame or stock of the gun, 2 the barrel portion hinged to the front part of the frame by the pin 3, and 4 the shell extractor, see Fig. 1.

The frame 1 of the gun may be made of any ordinary shape, but is not provided with the ordinary top snap lever for locking the barrel portion to the frame. The frame 1 is provided with the ordinary firing pin 5, and trigger guard 6, and is slotted out in its front portion to receive the lug 7 on the barrel portion 2, in the ordinary way. The barrel lug 7 is provided with a horizontal slot 8 in the lower part thereof, into which is adapted to extend the locking bolt or plate 9, secured in this instance to the end of the locking lever 9, by a pin 9', to lock the barrel portion to the stock, as shown in Figs. 2, 3, and 4.

We will now describe our improved cocking and firing mechanism. The hammer 10 is hung on a pin 11 in the lower front portion of the frame, and is preferably made of the shape shown in Figs. 5 and 6, having the hub portion 10' over which the locking lever 9 extends when the parts are assembled, and the side extensions 10'', see Fig. 6, for the purpose hereinafter described. The hammer main spring 13 is free at both ends, and is adapted to have a longitudinal motion, and

one end extends over the side extension 10'' of the hammer 10, upon the opposite side of the hammer from the locking lever 9, and is provided with an anti-friction roll 12 mounted therein, which is adapted to ride on the projecting flat portion of the side extension 10'' of the hammer, and to travel toward and away from the pivot point of the hammer, so as to bear upon one side or the other of the pivot point, as shown in Figs. 2 and 3. The other end of the main spring 13, which extends upon the opposite side of the trigger from the locking lever 9, is made forked or bifurcated, as shown at 13' Fig. 10, and is provided with an anti friction roll 14, which is adapted to travel and bear on a cam plate 15, made integral with the frame 1, or secured thereto.

In the drawings the trigger and sear are shown made in one piece, but if preferred they may be made separate.

The trigger 16 is hung on a pin 17, which extends through the frame above the main spring 13; a trigger spring 16' acts on the trigger in the usual way. The trigger 16 is provided with a projection 16'' forming the sear adapted to engage the notch 17' in the hammer 10. The inner end of the locking lever 9 is pivotally connected by a pin 20 to the upper end of the safety lever 21. The safety lever 21 is of angle shape, and is pivoted preferably on a pin 22 secured in the rear portion of the guard 6. One end of the safety lever 21 extends up within the frame 1, through a slot or opening in the lower edge thereof, and the other end extends in this instance upon the lower side of the frame 1, and is provided with the broad portion 21', see Fig. 8, adapted to extend upon the outside of the frame to furnish a grasping surface, and the fin-like portion 21'', adapted to extend in a slot or groove made in the lower edge of the frame 1. The inner end of the safety lever 21 extends through the bifurcated or forked end 13' of the main spring 13, and is connected with said main spring by pins 20 extending out from the opposite side of the lever 21, and adapted to fit into depressions 13'' in the upper surface of the main spring 13.

By means of the connection between the hammer main spring 13, and the inner end of the safety lever 21, the rocking of the lever 21 on its pivot pin will communicate a longitudinal motion to the hammer spring 13, and at the same time to the locking lever 9, connected to the inner end of the safety lever 21; and any longitudinal motion of the main spring 13, which is free to move longitudinally, except for its connection with the inner end of the lever 21, will cause the lever 21 to rock on its pivot pin, and will also cause the locking lever 9 to move longitudinally. The tension of the hammer main spring 13, confined between its two bearing points, (the roll 12 on the side extension 10'' of the hammer 10, and the roll 14 on the cam surface

15,) by pins 20 on the lever 21, will tend to rock the lever 21 on its pivot pin, and to force and hold out the outer end of said lever as shown in Fig. 2.

The operation of our improved cocking and firing mechanism will be readily understood from the above description in connection with the drawings, and is as follows: Immediately after the gun is fired the parts of the cocking and firing mechanism will be in the position shown in Fig. 4. The tension of the main spring 13 now acts to cause the roll 14 to travel down the decline in the cam surface 15, and move the spring 13 longitudinally; the longitudinal movement of the spring 13 will cause the roll 12 to travel on the side extension 10'' of the hammer toward and beyond the pivot point of said hammer, thus cocking the hammer as shown in Fig. 1, at the same time the lever 21 will be rocked on its pivot pin, and the outer end thereof be moved out and away from the frame, and the locking lever 9 will be moved with said lever, and the locking bolt 9' will be disengaged from the slot in the barrel lug, to allow the gun to be broken down as shown in Fig. 1. The tension of the main spring 13 causes the roll 14 to ride up the incline on the cam surface 15, and rock the lever 21, and move the locking lever 9 so as to free the locking bolt 9' from the slot 8 in the barrel lug 7, see Fig. 1. After the barrel portion is broken down, the return of the roll 14 down the incline to the lowest point in the cam surface 15, will slightly move the lever 21, and also the locking lever 9, and force the locking plate 9' into the slotted portion of the frame, so that in the closing of the barrel portion the lower edge of the barrel lug 7 will strike against the end of the plate 9', and force it slightly backward, causing the roll 14 to ride up on the incline 15'' until the barrel portion is in its normal position, when the tension of the spring 13 will cause the roll 14 to return to the lowest point in the cam 15, and force the plate 9' of the locking lever 9 into the slot 8, to lock the barrel portion to the frame, as shown in Fig. 2. The gun is now cocked preparatory to firing, as shown in Fig. 2, but by reason of the roll 12 on the main spring 13, bearing back of the pivot point of the hammer, as shown in Figs. 1 and 2, the gun cannot be discharged by pulling the trigger, for the hammer will not operate to fire the gun, and in order to fire the gun it is necessary to move the main spring 13 longitudinally to cause the roll 12 to move forward and ahead of the pivot point of the hammer, and this is done by grasping and pressing inwardly the outer end of the safety lever 21. The position of the safety lever 21, relatively to the frame 1 is such, that it is readily grasped by the hand, preparatory to drawing the trigger to fire the gun, and the inward pressure of the safety lever 21 causes the lever to rock on its pivot pin 22, and the inner end thereof, carrying the pins 20 which extend in depressions 13'' of the main spring 13, to move lon-

gitudinally the main spring 13, and cause the roll 14 to ride up the incline 15' of the cam surface 15, and the roll 12 to ride up on the extension 10" on the hammer, forward of the pivot point of the hammer 10, as shown in Fig. 3, and at the same time to move the locking bar 9 and force the plate 9' thereof farther into the slot 8 in the barrel lug. The gun may now be discharged by pulling the trigger in the ordinary way. After the gun is discharged the safety lever 21 is released from the grasp of the user, and the main spring 13 acts to rock the lever, and move outwardly the outer end thereof, and at the same time cock the hammer and unlock the barrel portion as above described.

The advantages of our improvements in breech loading fire-arms will be readily appreciated by those skilled in the art.

We make a fire-arm in which the top snap lever is dispensed with, and we make the cocking and firing mechanism of very simple construction and operation, and consisting only of the trigger, hammer, hammer main spring, and the safety lever attachment, combined with the hammer main spring, and the barrel locking lever.

By means of the safety lever attachment any premature or accidental discharge of the gun by the pulling of the trigger is prevented, and in order to discharge the gun it is necessary to first grasp and press inwardly the safety lever, to cause the main spring to act on the hammer, so that the subsequent pulling of the trigger will discharge the gun.

The safety lever may extend upon the upper side of the frame instead of the lower side, if preferred.

It will be understood that the details of construction of our improvements may be varied if desired, and they may be readily applied to a double barrel gun.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a breech loading fire-arm, the combination with the hammer, of the hammer main spring, free at both ends and adapted to have a longitudinal motion, with one end bearing on the hammer, and the other end on a cam surface, and said cam surface, and a safety lever connected at one end with said main spring, and with its other end extending upon the outside of the frame, for the purpose stated, substantially as set forth.

2. In a breech loading fire-arm, the combination with the hammer, pivoted within the forward portion of the frame, of the hammer main spring, free at both ends and adapted to have a longitudinal motion, and provided with a roll at one end to travel on the side extension of the hammer, and bear upon each side of its pivot point, to fire and cock the hammer, and a roll at its other end to travel on a cam surface, and said cam surface, and a pivoted safety lever with one end connected with the hammer main spring, and the other end extending upon the outside of the frame, and adapted to be moved inwardly to operate the main spring so as to fire the hammer upon the pulling of the trigger, substantially as shown and described.

3. In a breech loading fire-arm, the combination with the trigger, the hammer, and the hammer main spring free at both ends and adapted to move longitudinally, and bear at one end upon the hammer at each side of its pivot point, to fire and cock the same, and at the other end on a cam surface, and said cam surface, of a pivoted safety lever, adapted to be moved toward and away from the frame, and with one end extending upon the outside of the frame and its other end connected with the hammer main spring, said main spring acting to move the safety lever, and hold the engaging end thereof in its outward position away from the frame, for the purpose stated, substantially as set forth.

4. In a breech loading fire-arm, the combination with the hammer, and the hammer main spring, free at both ends and adapted to have a longitudinal motion, and to bear at one end upon the hammer, at each side of its pivot point, to fire and cock the same, and at the other end on a cam surface, and said cam surface, of a pivoted safety lever, with one end extending upon the outside of the frame, and its other end connected with the hammer main spring and with the locking lever, and said locking lever, adapted to have a longitudinal motion, and provided with a locking plate or bolt adapted to engage a slot in the barrel lug to lock the barrel portion to the frame, substantially as shown and described.

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