(No Model.) 3 Sheets—Sheet 1.

A. H. FOX.

BREECH LOADING BREAKDOWN GUN.

No. 522,464. Patented July 3, 1894.

Fig. 1.

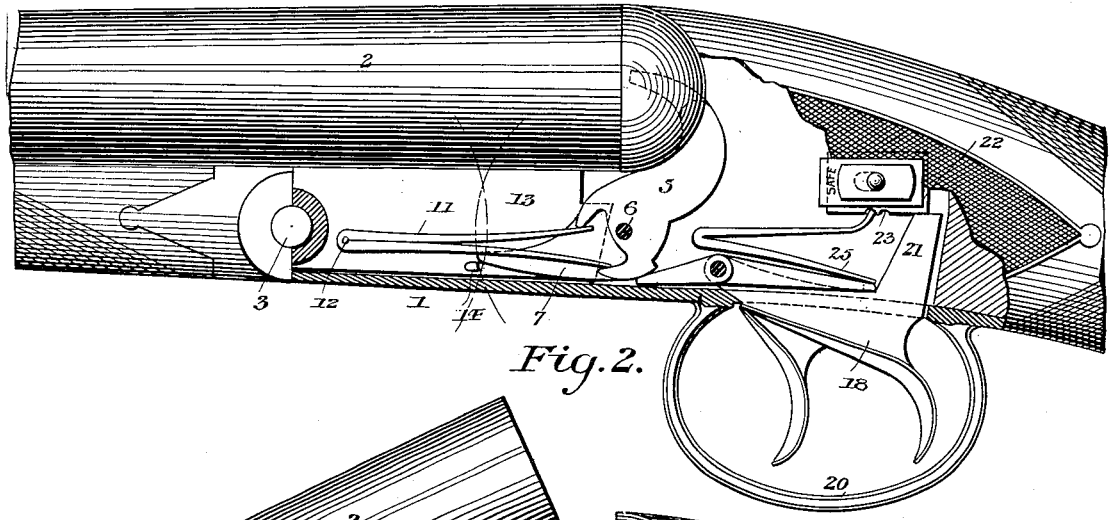


Fig. 2.

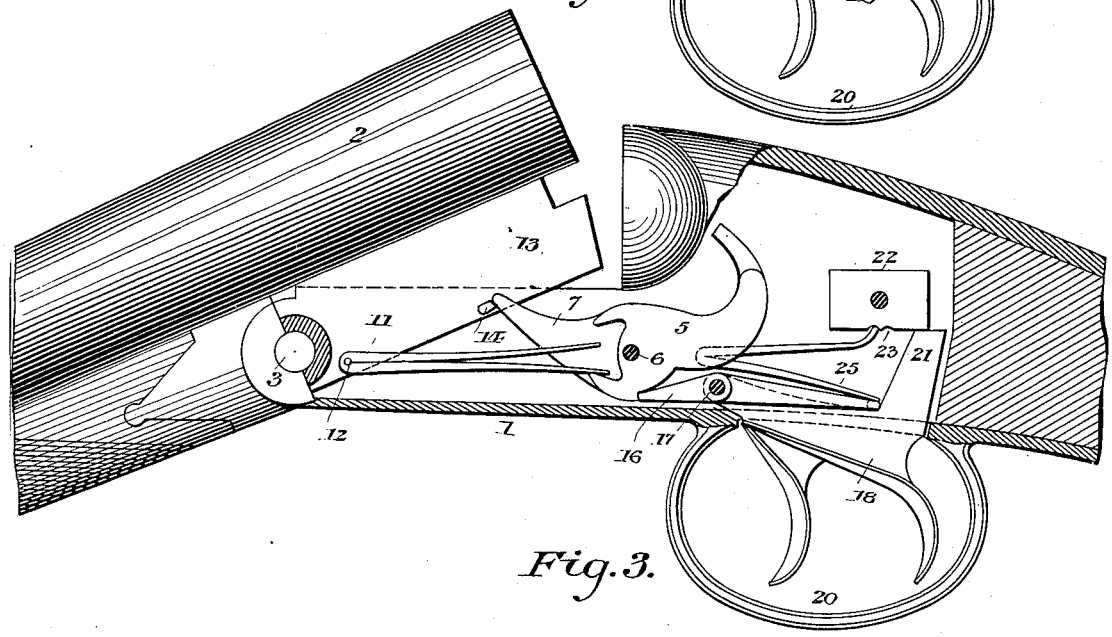
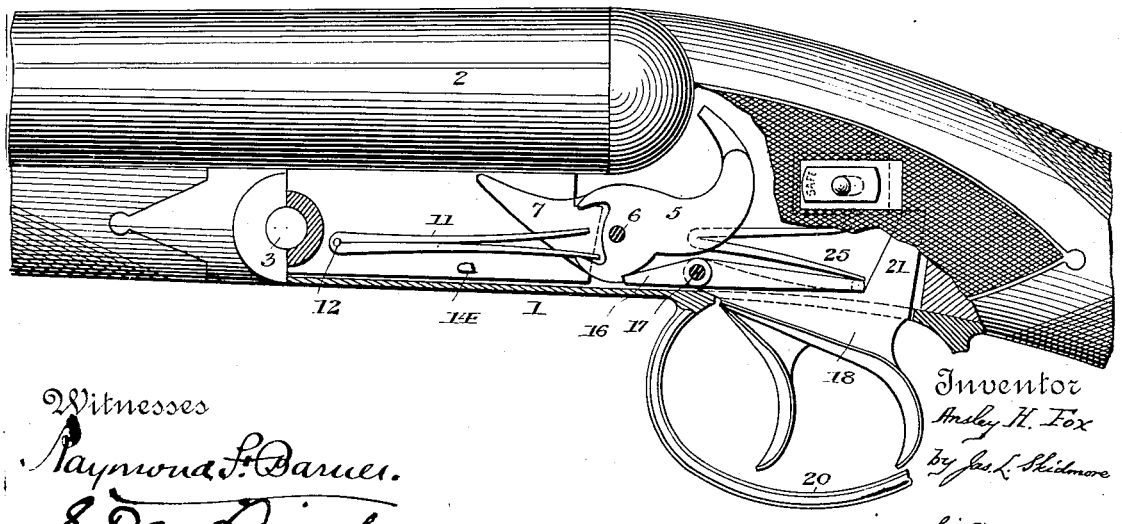


Fig. 3.



Witnesses
Raymond F. Barnes.
S. Dana Lincoln

Inventor
Ansley H. Fox
by Jas. L. Skidmore
his Attorney.

(No Model.) 3 Sheets—Sheet 2.

A. H. FOX.

BREECH LOADING BREAKDOWN GUN.

No. 522,464. Patented July 3, 1894.

Fig. 4.

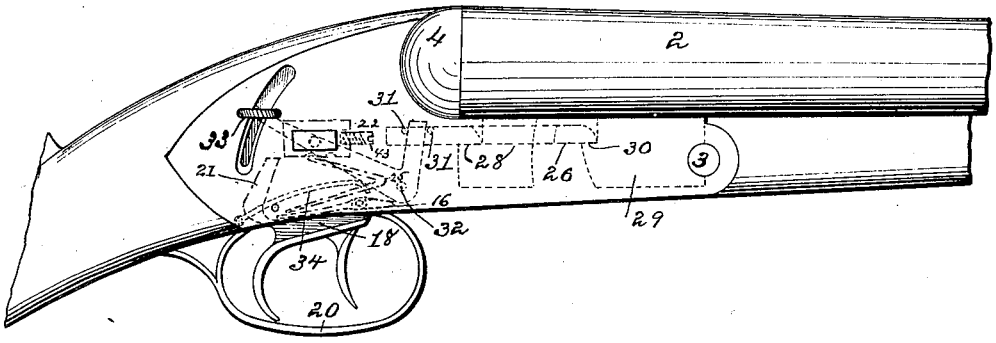


Fig. 5.

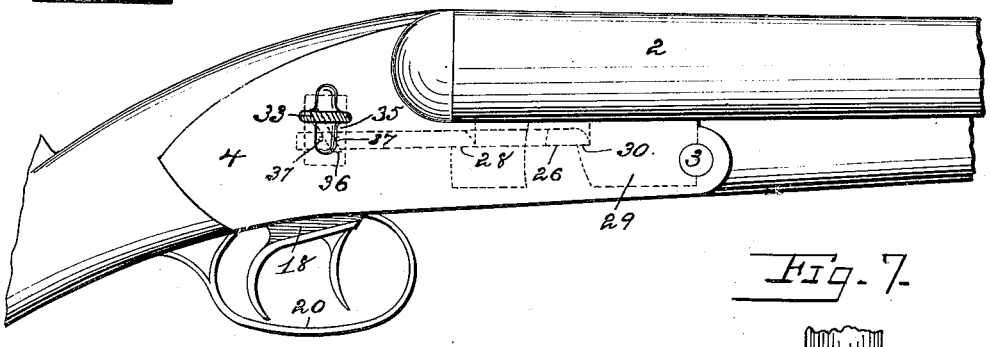


Fig. 7.

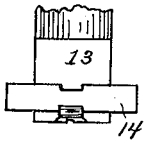


Fig. 6.

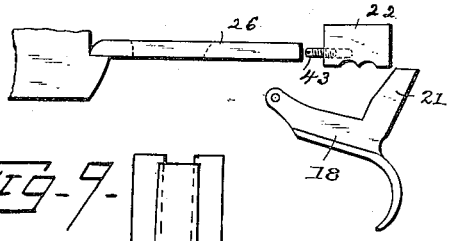


Fig. 8.

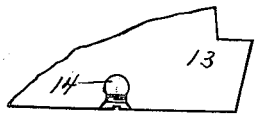
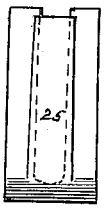


Fig. 9.



WITNESSES,
Walter Famariss
J. Wallace

Ansley H. Fox.
INVENTOR.
By Jas L. Skidmore
his ATT'Y.

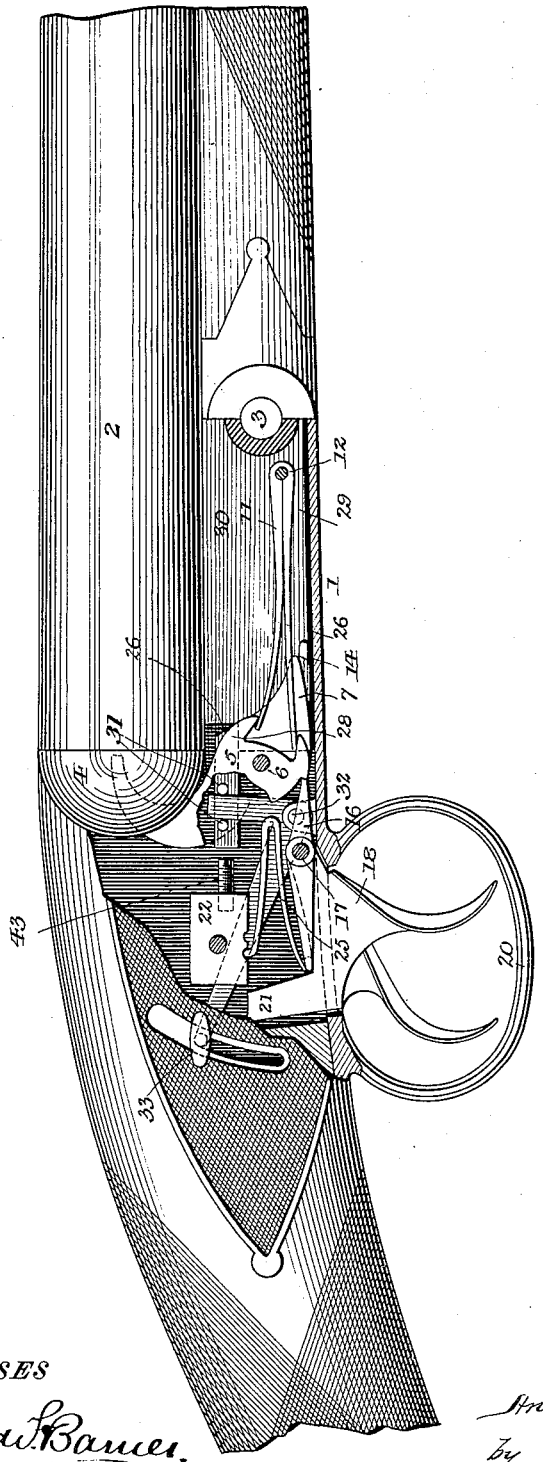
(No Model.) 3 Sheets—Sheet 3.

A. H. FOX.

BREECH LOADING BREAKDOWN GUN.

No. 522,464. Patented July 3, 1894.

Fig. 10.



WITNESSES

Raymond A. Bauer.

J. G. Meyer Jr.

INVENTOR

Ansley H. Fox

by Jas. L. Skidmore

his Attorney.

UNITED STATES PATENT OFFICE.

ANSLEY H. FOX, OF BALTIMORE, MARYLAND.

BREECH-LOADING BREAKDOWN GUN.

SPECIFICATION forming part of Letters Patent No. 522,464, dated July 3, 1894.

Application filed May 2, 1893. Serial No. 472,711. (No model.)

To all whom it may concern:

Be it known that I, ANSLEY H. FOX, a citizen of the United States, residing in the city of Baltimore, State of Maryland, have invented certain new and useful Improvements in Breech-Loading Firearms, of which the following is a specification.

This invention relates to certain improvements in that class of breech loading fire arms, known as "hammerless breech-loading break-down guns," and it has for its objects to provide a gun in which the locking and firing mechanism is inclosed in the forward part of the gun-stock or breech-block; and also to provide certain improvements in the locking and firing mechanism whereby its construction is simplified and precision in operation is secured.

The invention consists in providing the gun with a sliding locking-bolt which engages a lug at the breech of the barrel behind the pivot or hinge, by which the barrel is secured to the stock and mechanism for operating the same, the bolt and said mechanism being entirely inclosed with the fore part of the stock, with the exception of the knob, by which the mechanism is manipulated, as more fully hereinafter set forth.

The invention further consists in the combination with the hammer of the gun and the barrel thereof, of mechanism whereby the hammer is thrown back or cocked, automatically, on turning or breaking down the barrel; and further, to improved safety mechanism in combination with hammer and trigger, whereby the trigger and hammer may be locked when desired as more fully hereinafter set forth.

The invention also consists in so arranging the hammer in relation to the cocking lug as to permit the cocking arm of said hammer to freely pass the lug upon firing, and in improved mechanism whereby the hammer is caused to rebound after impact, and the invention still further consists in certain details of construction more fully hereinafter set forth and specifically pointed out in the claims.

The above-mentioned objects are attained by the means illustrated in the accompanying drawings, in which like reference numerals indicate similar parts in the respective figures.

In the drawings, Figure 1 represents a longitudinal sectional view of the breech portion of the gun, and the fore-part of the stock, showing the safety and firing mechanism. Fig. 2 represents a similar view showing the barrel broken down and the hammer set or cocked, and the safety mechanism set at safety. Fig. 3, represents a longitudinal, sectional view of the gun showing the barrel and the firing mechanism in position ready for the firing operation. Fig. 4, is a view of the opposite side of the gun showing the barrel in normal position and illustrating, by dotted lines, the locking mechanism in engagement with the lugs at the breech of the barrel, locking the same, and the safety mechanism in connection therewith. Fig. 5, is a view similar to Fig. 4, showing a modification of the mechanism for locking the barrel to the breech-block or stock of the gun. Fig. 6 is a detached view illustrating the locking bolt and safety block, the said safety block being in its forward position and provided with an adjustable screw, by the adjustment of which the safety block is made automatic or non-automatic. Figs. 7 and 8 are detail views, illustrating means for attaching and detaching the cocking lug. Fig. 9 is a detail view illustrating in plan the construction of the sear spring, and Fig. 10 is a side elevation, partly in section, illustrating the combination and co-operation of my mechanism.

Referring to the drawings, the numeral 1 indicates the fore part of the stock of a gun, within which the locking and firing mechanism is located.

The numeral 2 indicates the barrel of the gun which is pivoted or hinged to the fore end of the stock, as indicated by the numeral 3, in the ordinary manner. The breech block is of the usual construction and is indicated by the numeral 4.

The numeral 5 indicates the hammer or firing lever which is fulcrumed at 6 in the fore part of the stock. The said hammer is provided with a forward extension 7 which is cast integral therewith or fastened securely thereto in any convenient manner. The said extension is provided with lateral flanges at its upper and lower edges, as shown particularly in Figs. 1, 2, and 3 of the drawings, or pins or lugs, not shown in the drawings, may be

secured in any desired manner to said forward extension, with which flanges or lugs the free ends of the main spring 11 engage. The said spring at its forward end is provided with a lug or pin 12, or other suitable fastening, to rigidly secure the same to the metallic portion of the fore part of the stock.

The numeral 13 indicates a lug depending from the breech of the barrel and provided with a lug 14 at its lower end, made integral with lug 13 or detachable therefrom to compensate for wear, or said lug 14 may consist of a friction roller suitably attached to said depending lug, which engages and rides below the fore end of the hammer extension 7, so as to elevate said extension and throw the hammer back to cocking position, as shown in Figs. 2 and 3 of the drawings, during the operation of breaking down the barrel for the purpose of reloading the gun. The hammer at its rear is provided with a notch or shoulder 15, with which the fore end of the sear 16 engages when said hammer is in a cocked position, as shown in Figs. 2 and 3 of the drawings. The said sear is constructed in the usual way, preferably in one piece, constituting a long and short armed lever which lever or sear is fulcrumed at 17 in the metallic frame of the fore part of the stock. The long or rear arm of said sear rests upon the fore end of the trigger 18, which is also fulcrumed at 17, or it may be in a slot in the lower part of the said frame above the guard 20. The rear of the trigger has an obliquely-rising extension 21, over which the safety block 22 may be set to lock the trigger and hammer when required. The said safety-block is rectangular in shape and on its bottom is provided with two curved recesses 23, and is provided with a lateral stem which extends through a slot in the side of the casing, in which the locking and firing devices are inclosed, the said stem being set at safe, as shown in Fig. 2, and the unsafe or firing position, as shown in Fig. 3.

The numeral 25 indicates the sear spring the lower leaf of which bears against the tail of the sear, as shown, and the end of the upper leaf sets under the safety block, as shown in Figs. 1, 2 and 3 of the drawings, thus serving the double purpose of pressing the tail of the sear against the hammer and holding the safety block (after manipulating the said safety block, to either the firing or safety position through the medium of the button attached to the stem), in a set position.

It will be understood that the sear spring is provided with two lower leaves, one for each set of firing devices, in a double barreled gun, and an upper leaf for engagement with the said safety block.

Referring to Fig. 4 of the drawings, the numeral 26 indicates the bolt for locking the barrel. It is located longitudinally under the barrel at the breech, and is slotted longitudinally at its fore end, the rear wall of the slot being beveled to allow the rear locking lug to throw it back automatically when returning the barrel to normal or firing position. The said lug is provided with a shoulder 28 at its rear which is engaged by said bolt to lock the barrel, being assisted by the pivot or hinge lug 29, which is provided with a shoulder 30 which is engaged by the fore end of the bolt when set forth. The bolt is provided with laterally-projecting pins 31, between which sets the short arm of an angle lever, which is fulcrumed in the metallic frame of the fore part of the stock, as indicated by the numeral 32. The long arm of said lever extends rearward and, at its end, is provided with a lateral stem or projection which extends through a curved slot in the side of the metallic case at the fore end of the stock and the outer end of the said stem is provided with a button or knob 33 by which the lever may be manipulated to draw the bolt back to unlock the barrel. Under the long arm of the lever is located the spring 34 of any suitable construction which presses it upward so as to cause the bolt to move forward when the button or knob is released.

In the modification shown in Fig. 5 of the drawings the lever is dispensed with and in its place a sliding block 35, having an inclined lateral rib 36, is employed, as shown by dotted lines. The said rib sets between two studs or lugs, 37, at the rear end of the bolt and the block has a stem which projects through a vertical slot in the metallic casing at the fore end of the stock, the outer end being provided with a knob or button by which the block may be moved up or down to shoot or draw the bolt.

In Fig. 6 of the drawings the numeral 26 represents the locking bolt, 22 the safety block in its forward position suitably secured in the breech block, 18, the upwardly-projecting portion of the trigger, and 43 a set screw secured to the safety block and so arranged as to project from said block a suitable distance in order to intercept the locking bolt as it is being withdrawn to unbolt the barrel, the operation being thus:—As the action bolt is withdrawn, it comes in contact with the set screw, which, in turn, will push back the safety block, thereby causing the latter to move to the safe position, as shown in Fig. 2. When the invention is applied to a double-barreled gun, it is evident that the firing devices must be in duplicate.

The operation of my invention will be readily understood from the above description in connection with the drawings, and is as follows: The parts being in the position shown in Fig. 1 of the drawings, to break down the barrel the bolt is drawn back by operating the lever. Upon turning down the barrel so as to elevate the breech for the insertion of a cartridge the lateral projection 14 on the barrel lug will elevate the fore extension of the hammer, throwing it back until the projection or shoulder 15 is engaged by the fore end of the sear which is thrown into engagement

by the spring. After inserting the cartridge the barrel is returned to its normal position and locked. The gun is then in position for firing and the hammer when in this position may be locked by pushing the safety block back so as to set over the rear end of the trigger, the upper leaf of the spring passing from the forward to the rear recess at the lower edge of said safety block. By pushing the block forward the trigger is free to be operated to discharge the gun. When the firing nose of the hammer is in contact with the cartridge, the fore extension of said hammer has passed and is beyond the cocking lug, but after striking, the upper leaf of the main spring which is stronger than the lower leaf, causes the hammer to rebound into position to be engaged by the cocking lug in order to cock the hammer, upon again breaking down the barrel to re-charge the gun.

It will be seen from the above that the locking and firing devices are wholly incased, and if desired, the stem by which the bolt locking lever is operated, may be provided with a curved plate adapted to fit flush against the curved slot of the lock casing, so as to keep the slot closed, and prevent the entrance of dirt or moisture, as shown in Fig. 4. It will also be understood that the safety button is so arranged as to fit close against the outer surface of the gun in order to prevent the entrance of foreign substance or moisture.

By the construction, as illustrated in the drawings, it will be seen that the barrels may be readily attached to the gun stock regardless of the position of the hammers, for instance, should the fore extension of the hammer be in the position shown in Fig. 1, on attaching the barrels to the stock, the lug 14 will describe a portion of a circle, as shown in Fig. 1, carrying with it the said fore extension of the hammer, which in turn, also describes a portion of a circle, until they reach the point of separation, whereupon the upper arm of the main spring will serve to return the said hammer to the rebounded position and the lug will rest in a position to automatically cock the gun upon the breaking down operation.

Should the hammer be in a cocked position when it is desired to attach the barrels to the gun stock, as shown in Fig. 2, the inclined surface of the lug will come into contact with the end-portion of the fore extension of the hammer, and on describing a portion of a circle, as before referred to, will force said fore extension slightly upward, allowing the lug to pass and thus assume its normal position, as hereinbefore described.

It will be readily understood that, if desired, the set screw shown in Fig. 6, may be entirely removed from the safety block, or screwed so far into the same as to prevent it from coming in contact with the locking bolt during the operation of the withdrawal of the latter, thereby rendering the safety block non-automatic. It is obvious that certain slight changes in the construction and arrangement of the parts may be resorted to without departing from the main features of my invention.

I am aware that the locking levers may also operate directly or through the medium of a transverse or longitudinally-movable bolt, on a top extension carried by the gun barrels.

It will be seen that while attaching the barrels to the stock, the hammers will not come in contact with a cartridge, should there be one in the barrels at the time.

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

1. The combination with the hinged barrels, and their shouldered locking lugs, of the slotted sliding bolt located wholly within the gun casing, the bell-crank-lever pivoted within the said casing, and a stem adapted to the long arm of said lever and extending through the gun casing, substantially as described and for the purpose set forth.

2. The combination with the hinged or pivoted barrels, of the depending lug thereon, a detachable cocking lug extending laterally from said barrel lug, and a hammer having a forward extension beveled on the lower forward extension and which is engaged by said detachable lug to set or cock the hammer when the barrels are broken down, substantially as specified.

3. The combination with the sears, the trigger and the safety block, of the sear spring having three leaves, one leaf on either side bearing against the respective sears, and an upper leaf bearing against the block, whereby the sear and trigger are held in normal position and the block held in a set position to lock or unlock said trigger, substantially as described.

4. The combination with the pivoted barrels and their shouldered locking lugs, of the slotted sliding bolt, a safety block having a recessed portion, a spring, one leaf of which rests upon the rear portion of the sear and another leaf adapted to engage the recessed block, and a bell-crank lever having a stem and button for operating the bolt, the latter serving also to move the safety block to a set position, substantially as described and set forth.

5. In a break down gun, the pivoted hammer having a beveled fore extension, and provided with a recess at one side of the said fore extension, to receive the free ends of the main spring, the latter causing said hammer to rest in a position whereby it will intercept the detachable cocking lug, which lug serves to automatically cock the hammer during the operation of breaking down the gun, substantially as described and for the purpose set forth.

6. The combination with the hinged barrels, of their shouldered lugs, the sliding bolt for locking the barrels, the lever located entirely within the gun casing, the spring serv-

ing to return said lever to its normal position, a stem attached to the lever and an exterior button fitted to said stem, all substantially as described and for the purpose set forth.

7. The combination with the trigger, slotted locking bolt, and sear spring, of a safety block provided with a recessed portion, a stem, exterior button fitted to said stem and adjustable means for throwing said block into and out of operative relation with the locking bolt, all substantially as described.

8. The combination with the depending lug carried by the hinged barrel, and the cocking lug, of a rebounding hammer having a fore extension beveled on its lower forward extremity, the said hammer being pivoted at such a distance from the barrel pivot that the radius of its fore extension intersects the radius of the cocking lug at two points within the gun frame, substantially as described and for the purpose specified.

9. The combination with the hinged barrels and their shouldered lugs, of the sliding bolt for locking the said barrels to the gun stock, and the lever by which the said bolt is operated, said lever being located entirely within the gun casing and having a stem projecting through an opening in the casing, substantially as described and set forth.

10. The combination with the shouldered lug or lugs carried by the hinged barrel, of a detachable cocking lug, a rebounding hammer so pivoted that it will allow the said cocking lug to pass the fore extension of said hammer on attaching the barrels, and then rebound to a position where it will intercept the said cocking lug and be automatically cocked by the same upon breaking down the barrels, substantially as described.

11. In a breech loading fire arm, the combination with the cocking lug, of a hammer provided with a fore extension, the said cocking lug and fore extension being arranged in such relation one to the other, that the said hammer extension, during the firing operation, is permitted to pass beyond the said lug and then rebound into a position whereby it will engage with said lug, substantially as and for the purpose set forth.

12. The combination in a breech loading fire arm, of the barrels, the cocking lug, a rebounding hammer, provided with a fore extension for engaging with said lug, the barrels and hammer being pivoted and formed with such relation one to the other as to permit the lug to pass the fore extension in either the rebounded or cocked position, yet to cock the hammer during the breaking down operation of the barrels, substantially as described and for the purposes set forth.

13. The combination in a breech loading fire arm, of the cocking lug, a hammer provided with a fore extension, with means, substantially as described, for causing the said fore extension to pass beyond the said lug and rebound into a position to engage the said lug in order to cock the hammer during the breaking down operation, substantially as set forth and described.

14. The combination with the hinged barrels, and a cocking lug, of a rebounding hammer provided with a fore extension beveled on its lower forward extremity, the said hammer being so pivoted that the circle described by its fore extension intersects the circle described by the cocking lug at two points within the gun frame, thereby allowing the cocking lug to pass the said hammer extension in either the cocked or down position, substantially as described.

15. The combination with the hinged barrels, the lug carried thereby, and the cocking lug, of a rebounding hammer having a forward extension which is beveled on its lower forward extremity, the said hammer being so pivoted that the circles performed by its forward extension and the cocking lug, intersect at two points within the gun frame, thus allowing the cocking lug to pass said forward extension on attaching the barrels and then rebounding to its normal position where it intercepts the cocking lug and is automatically cocked by the same upon breaking down the barrels, substantially as described and set forth.

16. In a break down gun, the cocking arm of the hammer mounted to revolve freely past the cocking shoulder of the barrel when the gun is fired, and to intersect the arc described by said cocking shoulder at two points within the gun frame, and a main spring for returning it past the cocking shoulder to rest normally within the arc of and in a plane above said cocking shoulder, whereby on breaking down the gun the cocking shoulder engages the said arm and raises the hammer to cocked position, substantially as described.

17. The combination with the cocking lug of a break down gun, of the cocking arm of the hammer mounted to revolve freely past the cocking shoulder of the barrel when the gun is fired, and a main spring for causing the cocking arm to rebound past the cocking shoulder into a position to be caused to intersect the arc described by the cocking shoulder in breaking down the gun at two different points within the gun frame, and to rest normally with a part of said cocking arm within the said arc and in the path of upward movement of the cocking shoulder, as set forth and described.

18. In a gun, the cocking arm of the hammer, mounted to rotate past the cocking shoulder and to intersect in its rotation the arc described by said shoulder at two points within the gun frame, and to rest normally when the hammer is down, with its foremost portion within said arc and in a plane above the cocking shoulder, and when cocked with the lower surface of its foremost portion at the upper point of intersection of the arcs described by

said foremost portion of the cocking arm and the cocking shoulder, as set forth and described.

19. In a break down gun, the cocking arm of the hammer mounted to revolve freely past the cocking shoulder of the barrel when the gun is in a closed or locked position, and to intersect the arc described by the cocking shoulder in breaking down the gun at two different points within the gun frame, and to rest normally with a part within the said arc and in the path of upward movement of the cocking shoulder, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ANSLEY H. FOX.

Witnesses:
ROBERT G. JOHNSON,
J. FRED. KELLEY.