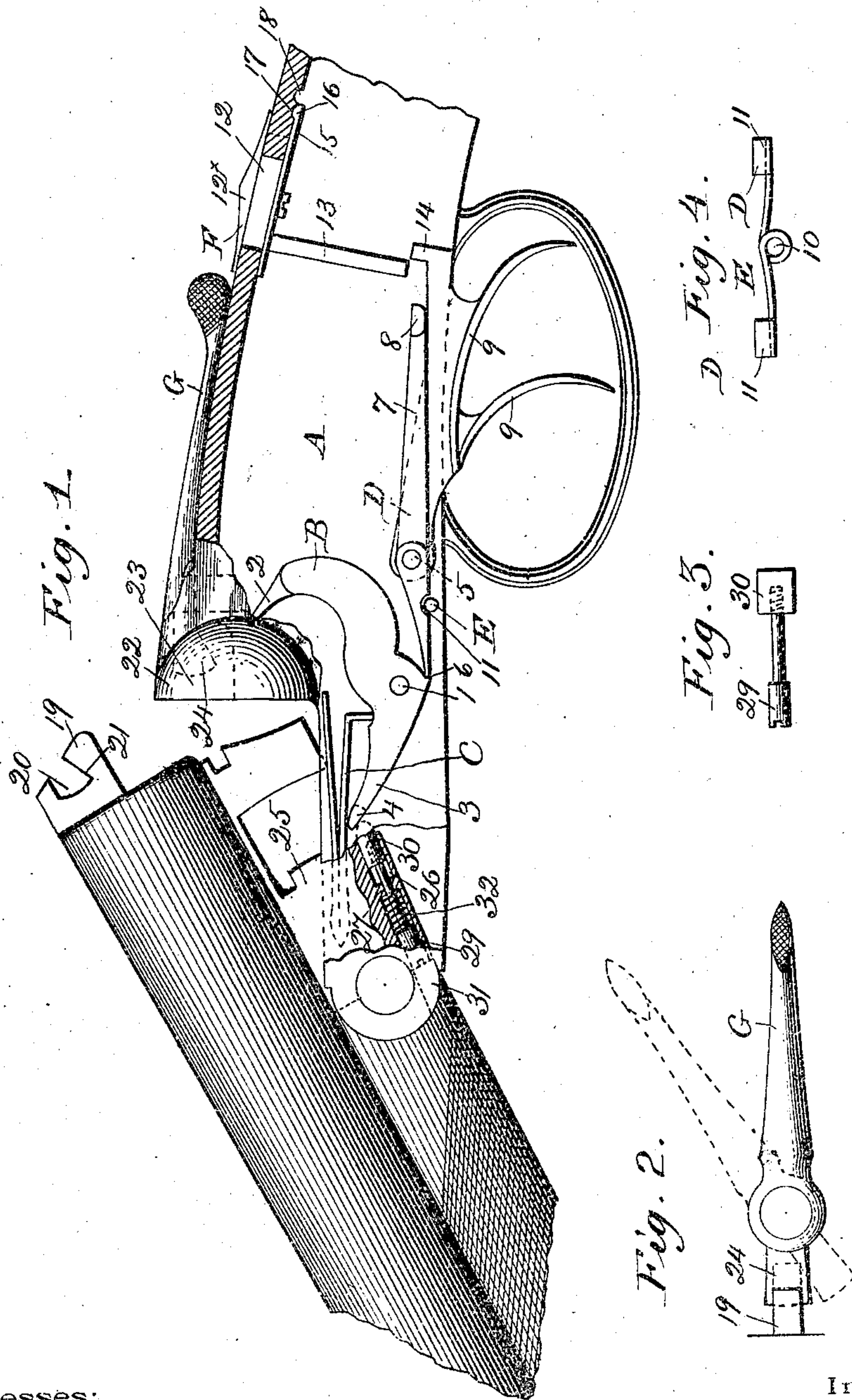


(No Model.)

A. H. FOX.
BREECH LOADING BREAKDOWN GUN.

No. 563,153.

Patented June 30, 1896.



Witnesses:

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UNITED STATES PATENT OFFICE.

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BREECH-LOADING BREAKDOWN GUN.

SPECIFICATION forming part of Letters Patent No. 563,153, dated June 30, 1896.

Application filed July 16, 1895. Serial No. 556,141. (No model.)

To all whom it may concern:

Be it known that I, ANSLEY H. FOX, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Breech-Loading Firearms; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention has relation to improvements in breech-loading firearms of that style or class such as disclosed by the United States Patent granted to me on the 3d day of July, 1894, numbered 522,464, and known as "hammerless," wherein the hammers are concealed within the breech block or frame, and are moved into a cocked position when the barrels are broken down or tilted on the hinge-pin.

The objects of my invention are to simplify and improve the cocking mechanism, provide improved means for holding the sears in engagement with the hammers, and to improve the safety devices for holding the triggers in safe position when desired.

A further object of my invention is to provide the barrels with an improved form of rear extension adapted to register with a counterpart recess in the breech-block, in order to secure greater strength where needed, said extension being provided with a dovetail recess, to which is adapted a dovetailed extension on the forward end of the snap-lever.

The foregoing and such other objects as may appear from the ensuing description are attained by the improved devices illustrated in the accompanying drawings, in which—

Figure 1 is a side view of a breakdown breech-loading gun, partly in section, wherein are assembled and embodied my respective improvements. Fig. 2 is a top plan view of the top or thumb lever, showing its engagement with the extension rib or lug in full lines, and the shifted position of the lever shown in dotted lines. Fig. 3 is a detail view of my improved cocking-bolt removed from the gun. Fig. 4 is a detail view of the sear-spring, illustrating its application to the sears.

A designates the breech-frame, which, except in the respects hereinafter specified, is of the usual well-known construction and form, being chambered and recessed to receive and hold the several parts constituting the means for holding the barrels in locked position, and the locks or firing mechanism.

It will be understood that the invention is applicable to either double or single barrel guns, the parts constituting the firing mechanism being duplicated in instances where used on double-barreled guns.

B designates the hammers, mounted on a pin 1 in the usual manner, and formed with curved striking-arms terminating in tapering ends 2, which strike the primer through apertures in the breech-block, as usual. The hammers are formed with arms 3, extending forward of the fulcrum-pin, which arms terminate in lateral extensions 4 to engage with the block on the end of the cocking-bolt, as indicated in Fig. 1 of the drawings.

C designates the mainspring, secured in the breech-block in any suitable manner to engage and act on the forward arms of the hammer, substantially as shown in the drawings.

D designates the sears, fulcrumed in the breech block or frame at 5 on a cross-pin, and formed to engage with a notch or seat in the heel of the hammers, as seen at 6 in the drawings. The rear arms 7 of the sears are formed with lateral extensions or lugs 8, which rest on the respective triggers 9, as indicated in Fig. 1 of the drawings.

E designates the sear-spring, consisting of a single piece of spring metal, wire, or plate, provided with a single turn of the metal, constituting a pivotal hole 10 in the middle of its length, through which a supporting-pin is passed or by which the said sear-spring may be suitably secured in the breech block or frame. When the sear-spring consists of a piece of round metal, the pivotal hole 10 is formed by taking one or more turns in the piece, in order to provide the necessary elasticity to the arms of the spring. This sear-spring is mounted transversely of the breech block or frame, and rests with its respective ends in notches 11 in the under side of the sears, as shown in Figs. 1 and 4 of the drawings. This engagement between the spring and the sears holds

the ends of the spring always in proper relation to the sears, and by the action of the spring on the sears they are always active to engage the heels of the hammers and maintain the engagement with certainty and safety.

F designates the safety-slide, arranged to have a limited and determined sliding movement in a slot 12 in the upper portion of the breech-frame. The slide consists of a head-piece or button 12^x, sliding in the slot in the tang of the breech-frame, and formed with an integral vertical extension or depending arm 13, which projects down into the frame and adapted to engage with a lug or extension 14 on the trigger 9, and so that when the end of the arm 13 and the lug 14 are in contact the triggers are locked against being manipulated to engage the sears and release the hammers. The safety-slide is held free from or in engagement with the triggers by means of a spring 15, secured to the under side of the slide and formed with a small lug or projection 16 in the end, which engages in seats or notches 17 18, respectively, according as to whether the slide is moved to lock or unlock the triggers. The rear end of the barrels is provided with an extension lug or rib 19, having the end face on line with a circle having the axis of the hinge-bolt as the center. In the extension 19 is a dovetailed recess 20, having the bottom or lower wall 21 preferably arranged at a greater incline than that of the upper wall and in radial plane with the pivot-pin of the gun, substantially as shown in the drawings. In the standing breech 22 is formed a recess 23, the counterpart of the extension-lug 19, which is intended to take in and exactly fit the recess when the barrels are down or in a locked position on the breech block or frame.

G designates the thumb or snap lever, which is mounted and secured in the frame, as usual, and is of course provided with the usual locking bolts or bolt to engage the lugs on the barrels. This bolt or bolts are not shown, because they do not form a part of my present invention and are well known.

The inner end of the snap-lever G is formed with a dovetail extension 24, which fits in the recess 20 of the extension-lug 19, and when in engagement therewith, the barrels are locked firmly and secured against upward or forward movement. The forward dovetailed end of the snap or thumb lever terminates at a point in the rear of the face of the standing breech, as shown by dotted lines in Fig. 1, and the forward end of said lever being wider than the extension-lug 19, those portions projected beyond the said lug on either side thereof, as well as the upper surface, have bearing against the solid metal of the breech-block which is directly in front of and above the end of the lever, thus insuring greater strength where it is especially required and effectually preventing longitudinal movement of the parts. One of the walls

of the recess 23 is chambered out to permit the movement of the extension 24 in a lateral direction, and out of engagement with the recess in the extension-lug 19. It will also be observed that the lower surface of the dovetail extension 24 is on a radial line with the axis of the pivot or hinge pin of the gun, and that the said lower surface is arranged at a greater incline than its upper surface, thus insuring not only a greater degree of strength when the barrels are locked in their normal position, but also serving to more reliably prevent vertical or longitudinal movement of the parts.

By constructing and relatively arranging the extension 24, and the recess 20 of the lug 19, as shown, that is to say, with the lower surface of the extension 24 and the lower wall 21 of the recess 20 both in radial line with the pivot or hinge pin of the gun, it will be obvious that I compensate for jars caused by recoils in firing, since the breech-joint is diagonally braced and the pivot or hinge pin and the dovetailed fastening of the snap-lever serve to an extent to protect each other from strain.

The specific form of the recess 20 and the end of the snap-lever also insures a secure engagement of these parts, as their meeting bearing-surfaces are so inclined as to lock them against upward or longitudinal play, and said inclined surfaces furnish an increased length of locking-surface, thus adding material strength where such is especially desired.

It will be readily perceived that a greater incline may be given to the upper surface of the extension 24, instead of its lower surface, the extension 19 being constructed to correspond with said extension and to register therewith.

In the forward lug 25 on the gun-barrels is formed a slot or seat 26, having an annular shoulder 27 formed therein, the rear portion of said slot or seat being broadened and substantially angular, and in this seat is disposed my improved cocking-bolt. This cocking-bolt consists of a screw-bolt 29, having its head elongated, and its stem provided with screw-threads at and near its end, substantially as shown, the threads engaging a threaded socket in a block 30, fitted to slide in the rear part of the bolt-seat 26, and engage with the fore extension or free end of the hammers, as clearly shown in Fig. 1 of the drawings, wherein the barrels are shown as tilted, and the hammer thrown back by the action of the cocking-bolt.

The block 30 has its free end inclined, tapered, or rounded, as shown, so that it will readily engage without undue friction the hammer-extension, and so that it may be reversed in its seat whenever desired, or as occasion may require. The cocking bolt or slide is forced forward and normally held into engagement with the hammer extensions by means of a projection 31, which latter serves

as an abutment or stop for the fore end of the cocking-bolt, said projection 31 being integral or attached to the rear portion of the fore-stock of the gun, as shown by dotted lines in Fig. 1, and as the barrels are tilted the rear end 30 of the cocking-slide engages extensions on the hammers on the under side of said extensions and cocks both of the hammers as the barrels are broken down or tilted.

By constructing the cocking-bolt in the manner specified it may be conveniently adjusted by turning the screw, and also any wear be readily compensated in like manner. On the stem of the cocking-bolt is arranged a spring 32, which presses and holds the bolt back in the slot 26 and out of engagement with the hammers when the fore-stock is removed, thereby allowing the barrels to be readily and freely attached to or detached from the gun-frame, regardless of the cocked or down position of the hammers.

It will be seen that the spring, as indicated, will act to withdraw the bolt and hold it back in the lug only when the fore-stock shall have been removed, so that there will be no interference with the other parts during the operation of attaching or detaching the barrels from the gun-stock.

I desire it to be understood that I lay no claim whatever to the projection on the fore-stock, which serves as an abutment for the fore end of the cocking-bolt, since the functions of said abutment may be satisfactorily performed by providing the rear end of the fore-stock with a recess, and the cocking-bolt with a more elongated head, adapted to rest and be seated in said recess.

It is evident that the locking-lever with the dovetail extension, the sear-spring, and the separable adjustable cocking-bolt may be made and sold as distinct articles adapted to replace those worn or broken, and I therefore make claim to these articles or elements as improved articles of manufacture. It is also obvious that the cocking bolt or slide may be readily utilized without the spring, in which case its rear end 30, being beveled, would, upon contact with the hammer arms or extensions 4, which may also be beveled, be forced back into the lug, assisted by the law of gravitation, as the barrels are being attached to or detached from the gun-frame, provided, of course, the fore-stock has first been removed.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a breech-loading firearm, the combination with the hammers and the sears, of a spring mounted transversely across the breech block or frame, and arranged to bear with its ends under the forward arms of the sears, substantially as described.

2. In a breech-loading firearm, the combination with a hammer, and the sears formed with transverse notches in the under side of their forward arms, of a spring mounted transversely to the sears and arranged to en-

gage with its ends in said notches, substantially as described.

3. In a breech-loading firearm, the combination with the hammers and the sears, of a spring made of a single piece of metal and formed with a central coil, and arranged transversely to the sears and adapted to engage each of said sears, substantially as described.

4. The sear-spring herein shown and described consisting of a single piece of metal and formed with a single turn of the metal constituting a central bearing and with arms extending in opposite directions from said bearing, substantially as and for the purpose specified.

5. In a breech-loading breakdown gun, the combination with the extended lug carried by the gun-barrels, of a locking-lever having a dovetailed forward extension integral therewith, the said lever extension being supported at its forward and upper surfaces by the solid metal of the breech-block, the lower surface of said lever extension engaging the said extended lug in a true radial line with the hinge-pin of the gun, substantially as described and for the purposes set forth.

6. In a breech-loading breakdown gun, the combination with the extension barrel-lug, said lug having a dovetailed opening or recess, of a locking-lever having a dovetailed forward extension, the locking-surface of which is on a true radial line with the hinge-pin of the gun and adapted to engage the dovetailed recess in the extension barrel-lug, substantially as shown and described.

7. In a breech-loading breakdown gun, means on a true radial line with the hinge-pin for locking the barrels to the breech-block, comprising an extension rib or lug carried by the barrels and having its end face recessed and dovetailed, the lower wall of said recess being on a true radial line with the hinge-pin of the gun and the upper wall of the recess being in substantially the plane of the barrels, and a snap-lever having an integral dovetailed extension supported at its forward and upper surfaces by the solid metal of the breech-block, the lower face of which is on a true radial line with the hinge-pin, the outer end face being curved, said extension being adapted to engage with and fit the said recess, substantially as shown and described.

8. In a breech-loading breakdown gun, a cocking mechanism, comprising the hammer, an adjustable screw-threaded cocking-bolt carried in the barrel-lug, and a detachable block on the end of the bolt, substantially as shown and described.

9. In a breech-loading breakdown gun, a cocking mechanism, comprising the hammer, a separable adjustable screw-threaded bolt and block carried in the barrel-lug, and a spring on the stem of said bolt, substantially as shown and described.

10. In a breakdown breech-loading gun, a cocking mechanism, comprising the hammer,

a separable adjustable sliding bolt located in the barrel-lug and arranged to engage with and lift the arm of the hammer, substantially as shown and described.

- 5 11. In a breakdown breech-loading gun, a cocking mechanism, comprising a cocking-bolt consisting of a screw-threaded bolt, a block on the threaded end of the bolt, said block being adjustable to compensate for
10 wear, and a projection on the end of the fore piece or stock, whereby when the fore-piece is attached to the gun the said projection serves to push the bolt and block forward and normally hold the block into engagement with
15 the hammer arms or extensions, substantially as shown and described.

12. In a breakdown breech-loading gun, the combination with the fore piece or stock, the hammers, and the barrels having a lug formed with a slot or recess, of a two-part sliding 20 cocking-bolt comprising a threaded stem and a detachable block to engage and lift the hammers, and a spring to throw and hold the bolt back when the fore-stock is detached from the gun-barrels, substantially as shown and de- 25 scribed.

In testimony whereof I affix my signature in presence of two witnesses.

ANSLEY H. FOX.

Witnesses:

CARRIE L. ACKER,
HARRY Y. DAVIS.