(No Model.) 2 Sheets—Sheet 1.

I. S. HEATLY.

BREAKDOWN GUN.

No. 489,191. Patented Jan. 3, 1893.

Fig. 1.

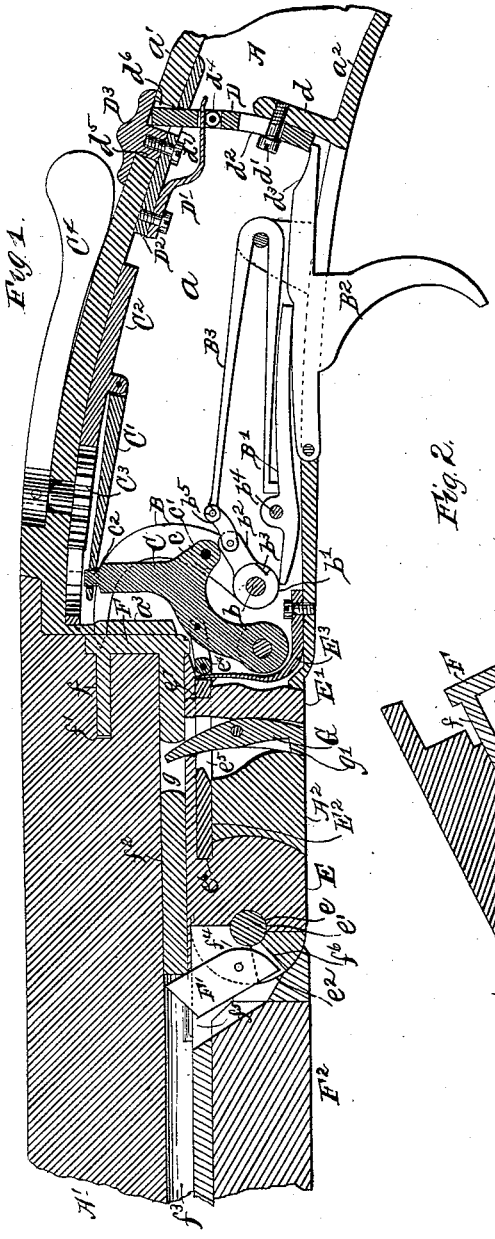
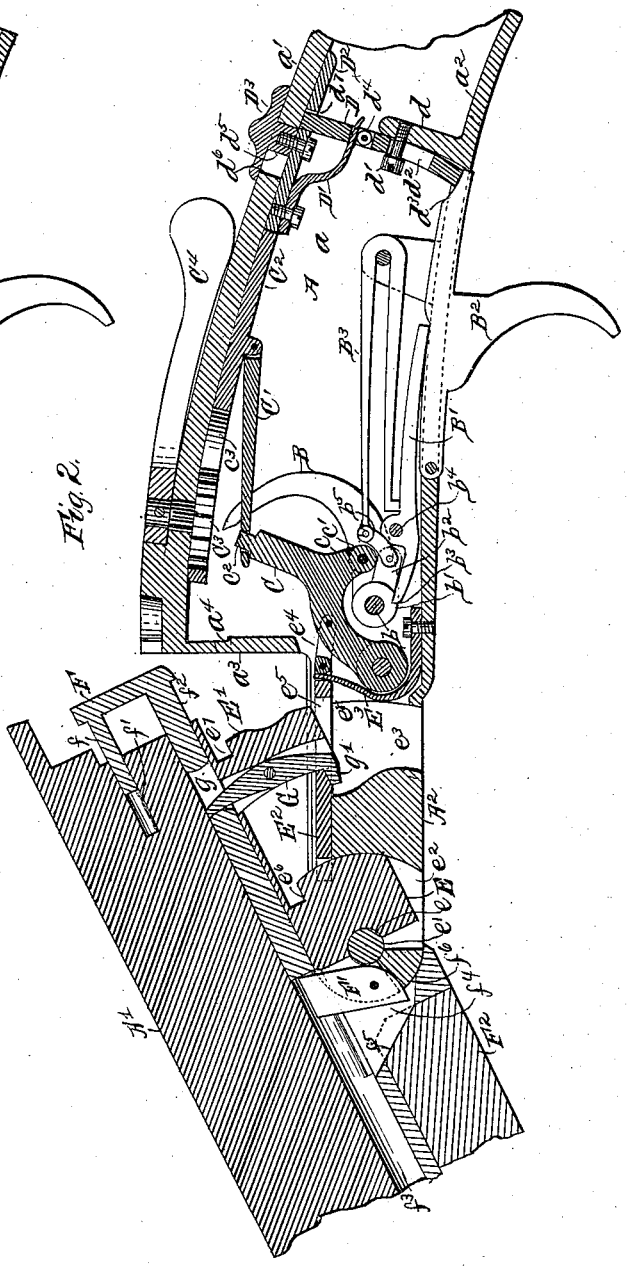


Fig. 2.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

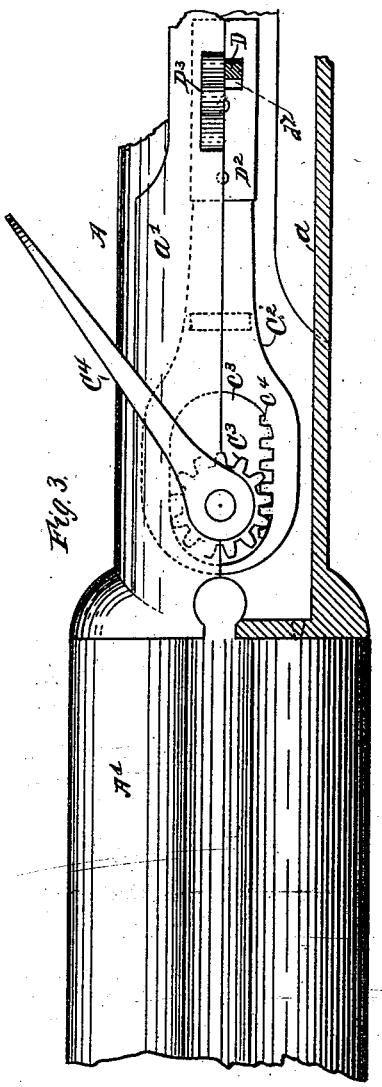


Fig. 4.

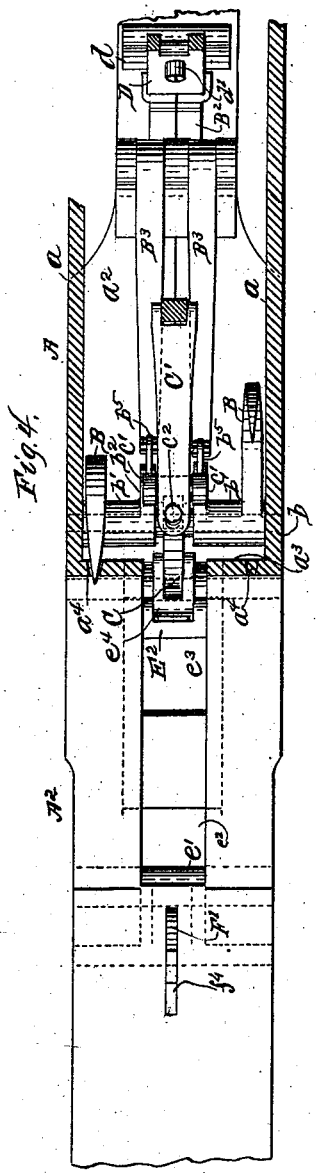
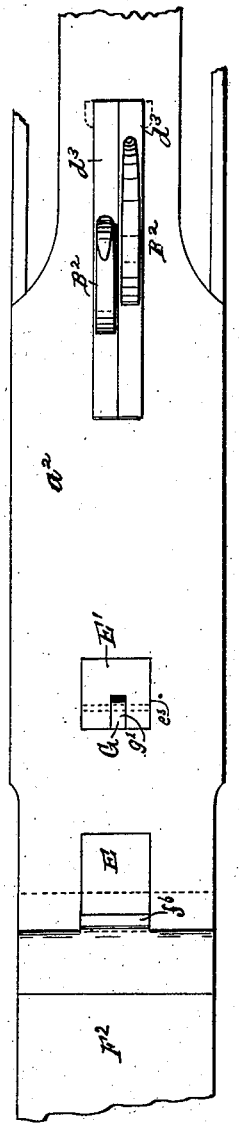


Fig. 5.



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UNITED STATES PATENT OFFICE.

ISAIAH S. HEATLY, OF JERSEY CITY, NEW JERSEY, ASSIGNOR TO ISAIAH S. HEATLY AND HENRY L. PRAET, JR., OF SAME PLACE.

BREAKDOWN GUN.

SPECIFICATION forming part of Letters Patent No. 489,191, dated January 3, 1893.

Application filed May 27, 1892. Serial No. 434,554. (No model.)

To all whom it may concern:

Be it known that I, ISAIAH S. HEATLY, of Jersey City, county of Hudson, and State of New Jersey, have invented a certain new and useful Improvement in Firearms, of which the following is a specification.

This invention relates to locks and discharging mechanism employed in so called "hammerless" guns, and also to certain other parts of the gun mechanism as will hereinafter appear.

The invention consists in the construction and novel arrangement of parts as hereinafter set forth.

In the accompanying drawings, Figure 1 is a vertical longitudinal section of a gun mechanism embodying my improvement. Fig. 2 is a similar view but showing the parts in a different position. Fig. 3 is a top or plan view with a portion of the top plate removed and certain parts omitted. Fig. 4 is a plan with the top plate and barrel removed. Fig. 5 is a bottom plan view.

Referring by letter to the drawings A designates a frame designed to be secured to a gun stock in the usual manner, and consisting essentially of the side plates a, the top plate a' and the bottom plate a^2. A vertical wall a^3 of the frame A forms the breech plate for the barrels A'. This breech plate a^3 is provided with holes a^4, through which the ends of the central fire hammers B pass to explode the charge. At its lower portion the frame A is provided with a forward extension A^2, to which the barrels are hinged as hereinafter described. Each hammer B is pivoted on a pin or rod b extending from one side wall to the other of the boxing A. As shown, these hammers at their lower ends have tubular blocks b' through which the pin or rod b passes, and the inner or adjacent ends of the blocks are provided with short arms b^2 extending at substantially right angles to the blocks. Each block b' is provided at one side with a notch b^3 into which the end of a pivoted sear B' engages to hold the hammer in a cocked position. The sears B' have a pivotal connection, as at b^4, with the frame A, and the longer arm of each sear engages with a pivoted trigger B^2. Springs B^3, of the usual construction, have the end of the lower arm, as here shown, bearing upon a dog B', near the fulcrum point, and the upper arm of each spring engages with a link b^5 which at the other end is pivoted to an arm b^2 of the hammers.

I will now describe the means for cocking the hammers. C designates a cocking sear pivoted at its lower end within the frame A between the hammers B. It has a rearwardly extending portion c on each side of which is journaled an antifriction roller c' adapted to bear upon the arms b^2 of the hammers. The upper end of the dog C has a lug c^2 engaging in a hole, in the forward end of a link C', which, at the opposite end, is pivotally connected to a slide plate C^2. This slide plate is movably secured to the inner face of the top plate a' in any desired manner, and is curved longitudinally to conform to the curve of the plate a'. At its forward end the plate is slotted, as at c^3 and one side wall of this slot is provided with rack teeth c^4, with which teeth of a pinion C^3 engage. The shaft of the pinion C^3 extends upward through and has its bearing in a hole in the top plate a' and a cocking lever C^4 is secured by a pin to the upper end of the pinion shaft. It will be observed that a segment only of the pinion C^3 is used to operate the plate C^2, but I prefer to provide the pinion with teeth throughout its circumference, so that should a tooth be accidentally broken the pinion may be shifted to bring an operative set of teeth into position by merely removing the lever C^4 or shifting it rotarily in the pinion shaft. Of course in doing this, it will be necessary to remove the holding pin and drill a new hole through the shaft for its passage.

The operation of cocking the hammers may be described as follows: The normal position of the cocking lever C^4 is in line with the longitudinal center of the gun. To cock the hammers the lever C^4 is moved laterally, as shown in Fig. 3, to rotate the pinion C^3 which slides the plate C^2 rearward to the position shown in Fig. 2. This movement of the plate C^2 operates, through the link C', to rock the cocking dog C, and turn the hammers on their pivots until the ends of the sears B' catch into the notches b^3 of the hammers. The cocking of the hammers compresses the springs B^3 so

that they will operate to throw the hammers forward to discharge the cartridge. The parts as so far described as to the cocking of the hammers are in the position shown in Fig. 2. The lever C^4 is now returned to its normal position and will return the parts C, C', C^2 to the position shown in Fig. 1, leaving the hammers cocked. The hammers cannot now be released, by pulling the triggers B^2, because the operation of the parts as described to cock the hammers, also sets a safety mechanism, which I will now describe.

D is a vertically movable safety latch consisting of a plate curved longitudinally and secured to a longitudinally curved lug d, extending upward from the bottom plate a^2 of the frame A, by means of a screw d' passing through a slot d^2 in the latch, the lower end of the latch rests upon rearward projections d^3 of the triggers, and is held thereon and moved in one direction by means of a spring plate D' engaging at one end with an antifriction roller d^4 journaled in an opening in the latch and secured at the other end to a slide plate D^2. The plate D^2 is adapted to slide upon the under surface of the plate a' in line with the plate C^2. A stud d^5 extends upward from the plate D^2 through a slot d^6 in the top plate a' and is provided with a thumb piece D^3. The plate D^2 has a hole d^7 in it through which the upper end of the latch D extends.

The operation of the safety mechanism is as follows: When the plate C^2 is moved rearward as before described, it moves the plate D^2 rearward and forces the upper end of the latch D against the under surface of the plate a' with the lower end upon the extensions d^3 of the triggers as shown in Fig. 2. The plate C^2 may be now returned to its normal position, leaving the safety latch at safety. While the safety latch is in this position a cartridge cannot be discharged because a trigger cannot be operated to release a hammer. To set the latch in position so that either one or both of the triggers may be operated the plate D^2 is pushed forward by means of pressure on the thumb piece D^3. This will leave a space in the slot d^6 rearward of the lug d^5, coincident with the hole d^7 in the plate D^2, and into which the upper end of the latch D may be forced when a trigger is pulled, as as shown in Fig. 1. Of course the forward movement of the plate D^2 imparts a slight longitudinal movement to the latch and brings its upper end in line with the slot d^6.

The manipulation of the parts to cock the hammers as described also serves to release the barrels A' so that they may be tilted in the usual manner to extract or insert cartridges, as I will now describe. A lug E extends downward from the barrels A' and is provided in its front face with a semi circular bearing notch e adapted to oscillate upon a bearing pin e' extended between the cheek pieces e^2 of the extension A^2. This construction allows the barrels to be wholly removed from the stock in the usual manner. A lug E' extends downward from the barrels in the rear of the bearing lug E and the extension A^2 is provided with a vertical opening e^3 into which this lug E' projects when the barrels are locked. E^2 is a locking bolt movable in guide ways in the upper portion of the extension A^2, and a link e^4 connects the rear end of this bolt with the dog C as shown. The bolt E^2 is provided with an opening e^5 through which the lug E' may move. The lug E is provided with a notch e^6 into which the end of the bolt E^2 may slide and the lug E' is provided with a notch e^7 into which the end wall e^8 of the opening e^5 may slide to lock the barrels in the position shown in Fig. 1. The operation of the hammer cocking mechanism, as heretofore described, draws the bolt E^2 out of the notches e^6 e^7 so that the barrels may be tilted as shown in Fig. 2. A spring E^3 secured at one end to the frame A and bearing at the other end upon the end of the bolt E^2 serves to push said bolt forward as the dog C resumes its normal position.

I will now describe the cartridge extracting mechanism. F designates the extractor the outer end of which is of the usual construction adapted to engage the rim of a shell. A steady pin f is movable in a longitudinal hole f' in the center piece of the barrels and a slide piece f^2 is movable in an opening f^3 in the lower part thereof. When the barrels are tilted to extract a shell or shells, a rock lever F' serves to push the extractor outward. This lever is pivoted between cheek pieces f^4 of the removable stock piece F^2 and has its upper end projected through an outward opening slot f^5 into the opening f^3 and impinging against the end of the slide piece f^2. The lower end of the lever F' is cam shaped or rounded and bears or operates against the upper inclined surface of a block f^6 extended from one side of the bearing e'. By this construction when the barrels are tilted the cam end of the lever F' bearing against the block f^6 will rack said lever and cause it to push the extractor outward. The extractor is pushed inward when the barrels are thrown down by contacting with the wall a^3.

In "breaking" or tilting the barrels the sudden shock at the end of the movement sometimes breaks the joint. To obviate this I employ a fulcrumed stop G. This stop is fulcrumed between its ends to the lug E' as shown and has its upper end projected into a slot g in the slide piece f^2. The lower end is provided with a hook g' to engage the forward end wall of the slot e^5 in the bolt E^2. When the barrels are tilted one end wall of the slot g will engage the stop and rock it on its pivot so that the hook g' will engage the bolt E^2 as shown in Fig. 2.

I have shown and described my improvement in connection with a double barrel fire arm, but I do not wish to be limited thereto, as, obviously, it can be used with a single barrel.

Having described my invention what I claim, is:

1. The combination, with a hammer, and the operating spring, of the cocking dog, a sliding plate having rack teeth, a link connection between said plate and cocking dog, a cocking lever and a gear operated by said lever and engaging the rack teeth of the plate, substantially as specified.

2. The combination, with the hammers, the operating mechanism therefor, and the cocking mechanism, of safety mechanism consisting of the curved plate having a slot, the lug, the screw passing through the slot and securing the plate to the lug, and means whereby the safety mechanism may be set by the operation of cocking the hammers, substantially as specified.

3. The combination with the frame having the forward extension, and the barrels pivoted thereto, the locking bolt and the stop carried by the barrel and constructed to engage with the locking bolt when the barrels are in a tilted position, substantially as specified.

4. The combination with the frame having the forward projection, of the barrels pivoted thereto, the locking bolt, the extractor operated by the movement of the barrels, and a stop fulcrumed to a lug on the barrels and having a hook to engage the locking bolt and adapted to engage at its upper end with the extractor, substantially as specified.

5. The combination with the frame having the forward projection, of the barrels pivoted thereto, the movable stock piece, the extractor and the rock lever having a cam-shaped end to engage, a block on the forward projection and engaging at its upper end with the extractor, the locking bolt and the stop pivoted to a lug on the barrels and movable by the extractor to engage with the locking bolt when the barrels are tilted, substantially as specified.

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

ISAIAH S. HEATLY.

Witnesses:
S. O. EDMONDS,
WILLIAM A. POLLOCK.