No. 670,100. Patented Mar. 19, 1901.

C. E. DE LONG.

SINGLE TRIGGER MECHANISM.

(Application filed Oct. 22, 1900.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

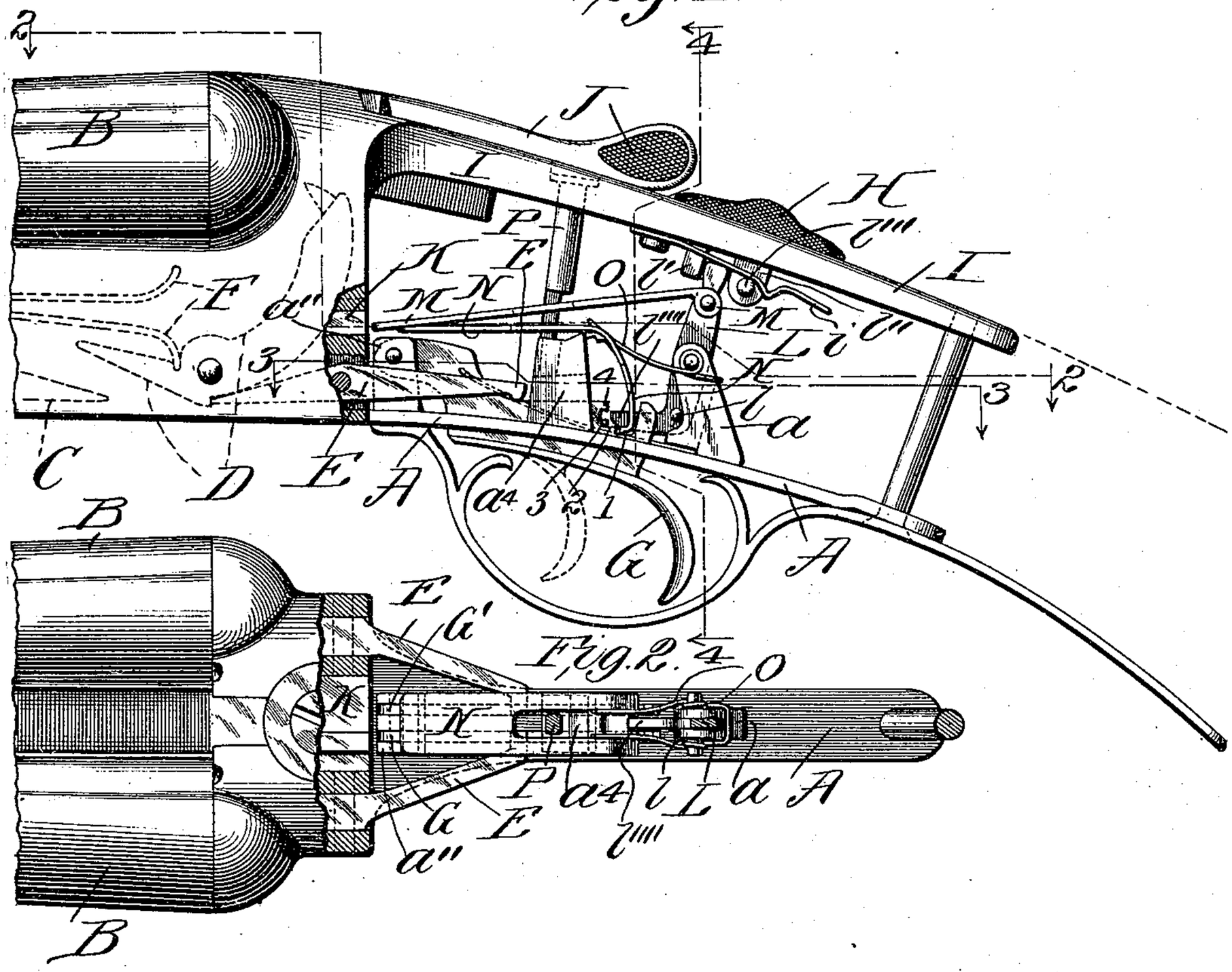

Fig. 2.

Fig. 3.

Fig. 4.

Attest:

Harry L. Amer.

Inventor

Charles E. De Long.

by Bakewell & Cornwall

Atty

No. 670,100. Patented Mar. 19, 1901.

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(No Model.) 2 Sheets—Sheet 2.

Fig. 5.

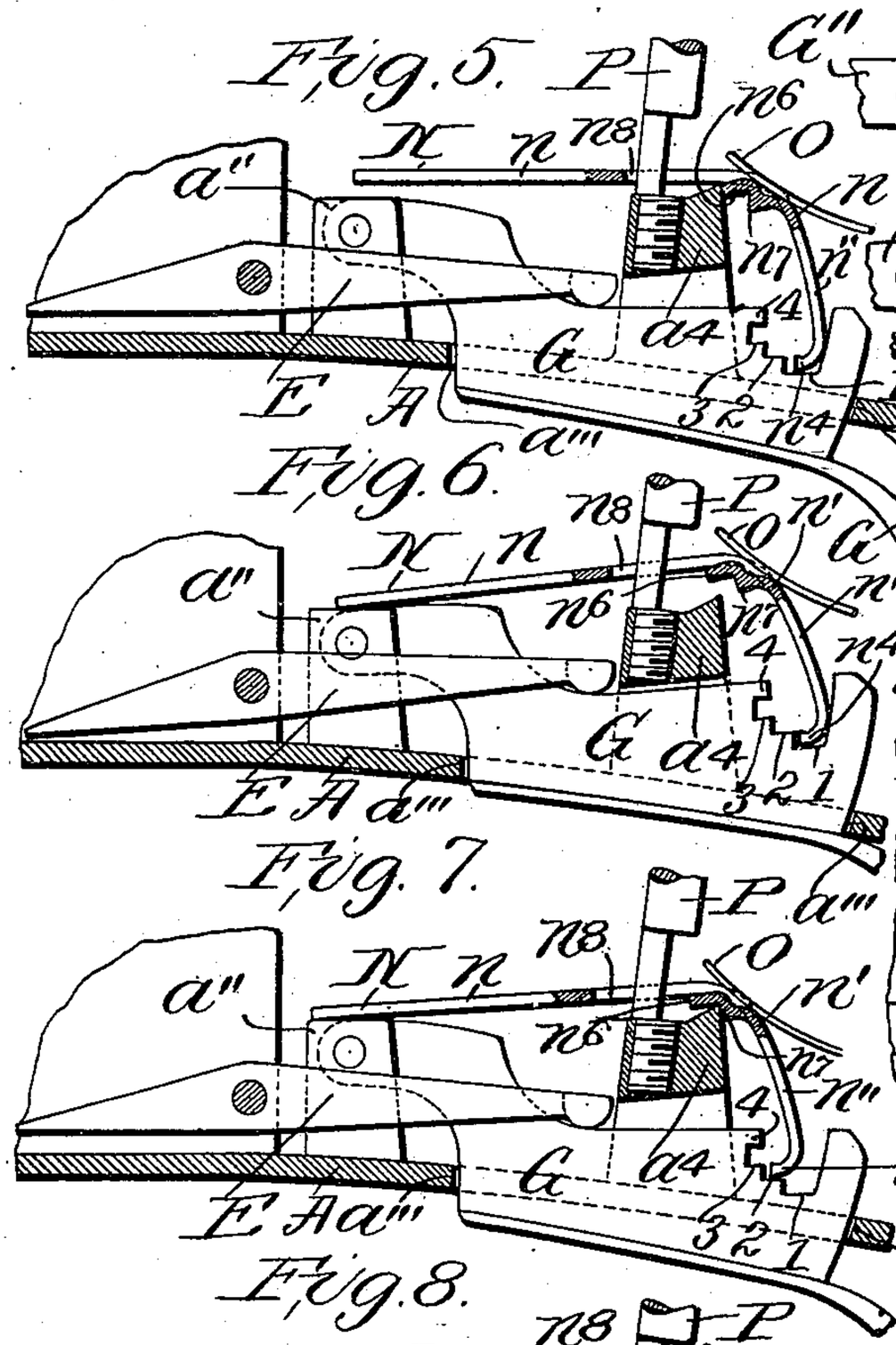


Fig. 6.

Fig. 7.

Fig. 8.

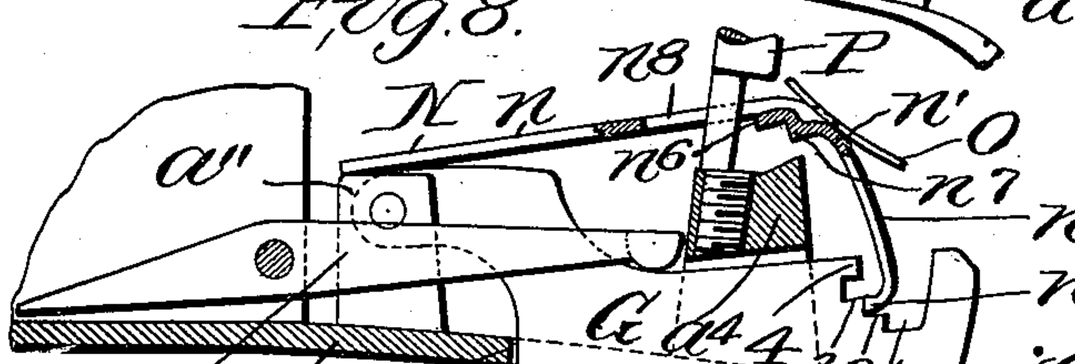


Fig. 9.

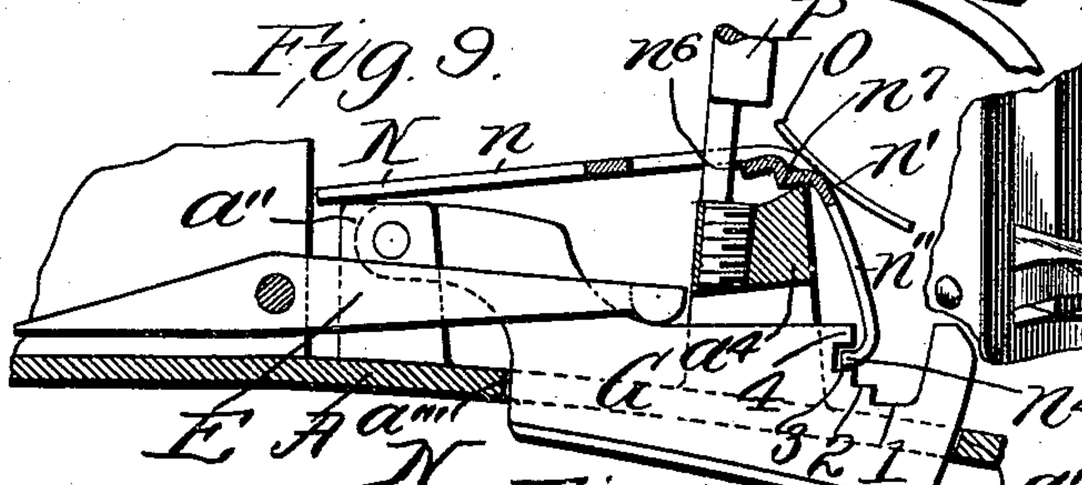


Fig. 10.

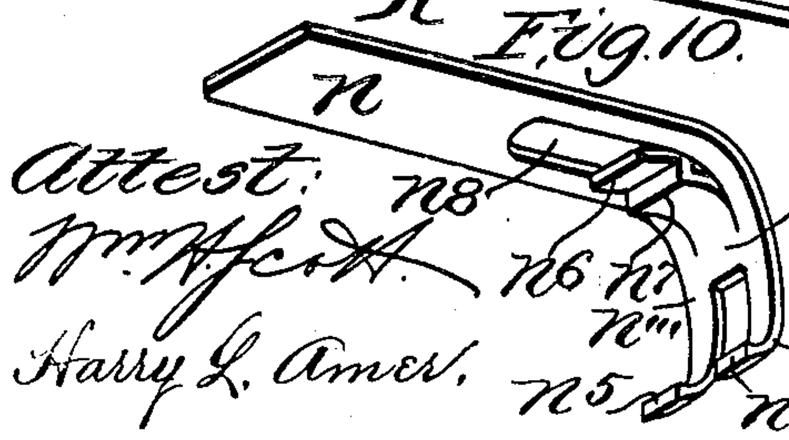


Fig. 15.

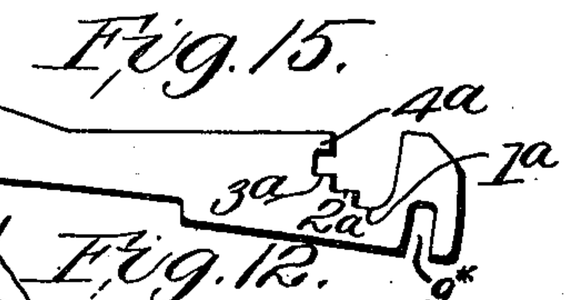


Fig. 12.

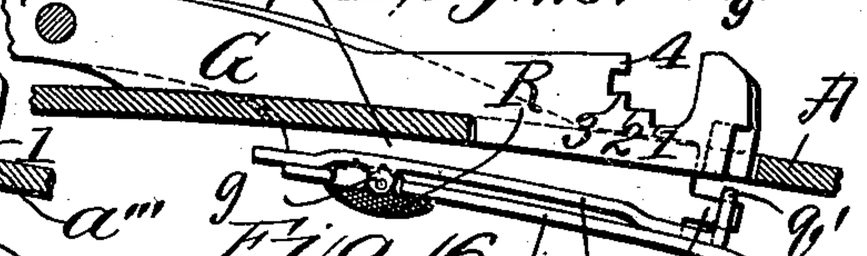


Fig. 16.

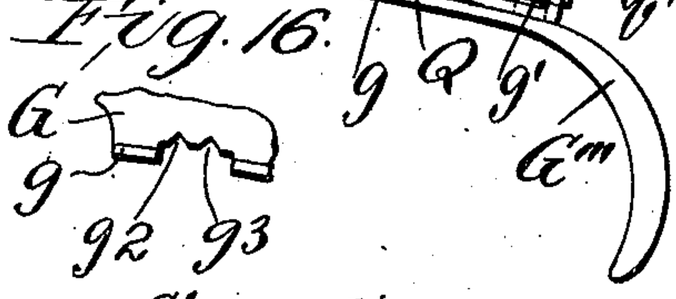


Fig. 13.

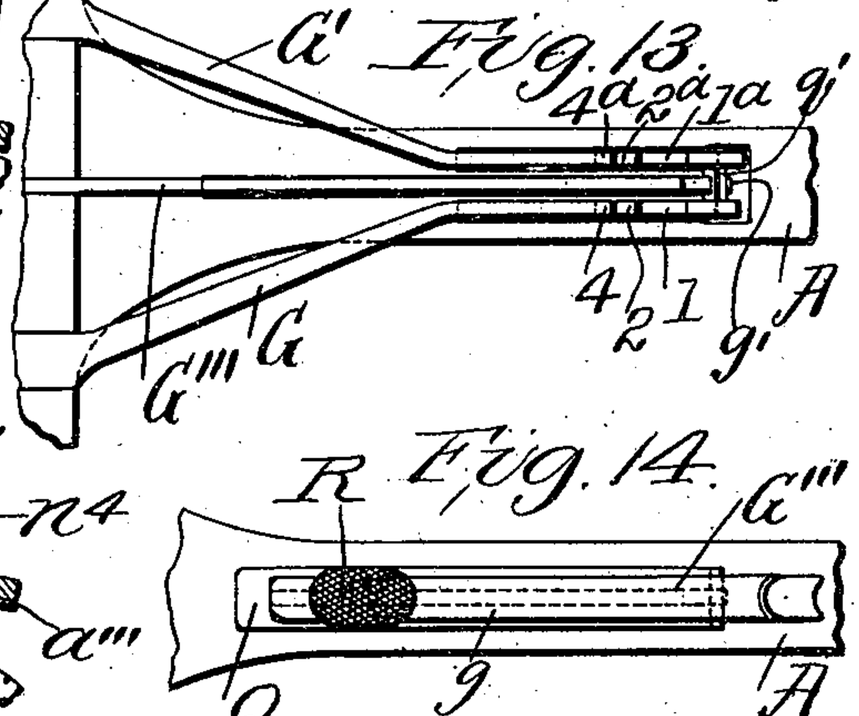


Fig. 14.

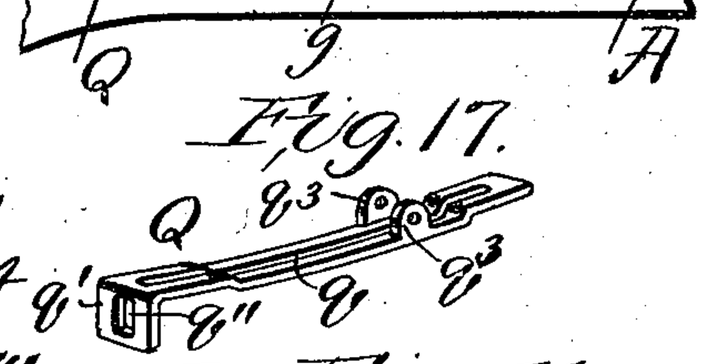
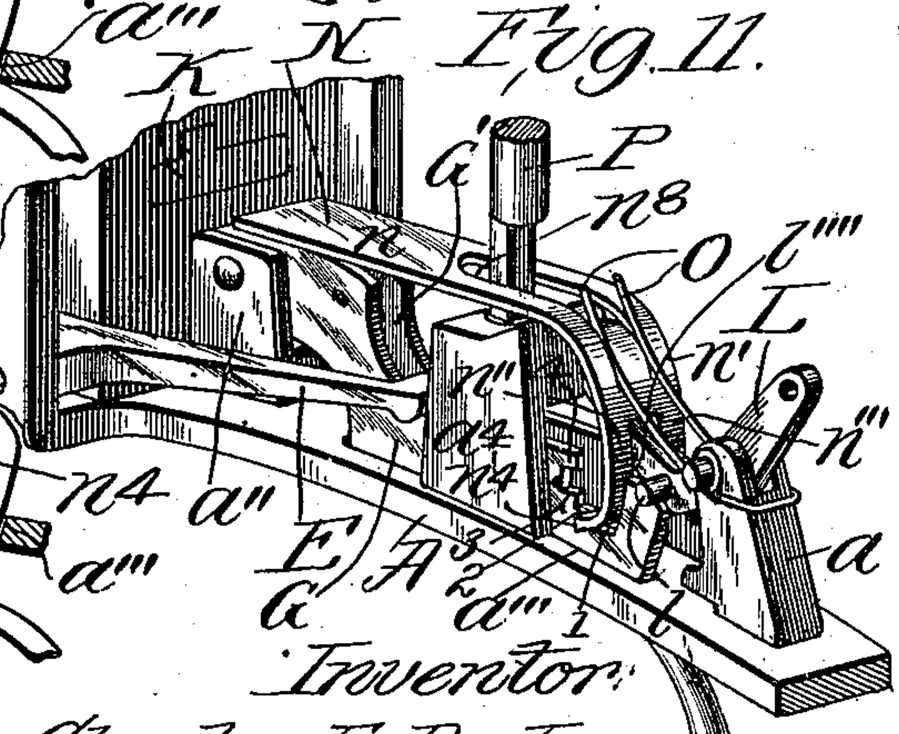


Fig. 17.

Fig. 11.



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by Dalkewell & Cornwall
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UNITED STATES PATENT OFFICE.

CHARLES E. DE LONG, OF HOT SPRINGS, ARKANSAS.

SINGLE-TRIGGER MECHANISM.

SPECIFICATION forming part of Letters Patent No. 670,100, dated March 19, 1901.

Application filed October 22, 1900. Serial No. 33,879. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. DE LONG, a citizen of the United States, residing at the city of Hot Springs, county of Garland, State of Arkansas, have invented a certain new and useful Improvement in Single-Trigger Mechanism, of which the following is a full, clear, and exact description, 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, forming part of this specification, in which—

Figure 1 is a side elevational view, partly in section, of a portion of a gun provided with my improved single-trigger mechanism. Fig. 2 is in part a top plan view and in part a horizontal longitudinal sectional view, the same being taken on line 2 2, Fig. 1. Fig. 3 is a horizontal longitudinal sectional view taken on line 3 3, Fig. 1. Fig. 4 is a vertical transverse sectional view taken on line 4 4, Fig. 1. Figs. 5 to 9, inclusive, are detail side elevational views, partly in section, of the principal mechanism employed in carrying out my invention, said views illustrating different positions taken by the parts during the manipulation of firing the gun. Fig. 10 is a perspective view of one piece of the mechanism employed in carrying out my invention. Fig. 11 is a perspective view of a portion of a gun, illustrating in position thereon my improved single-trigger mechanism. Fig. 12 is a side elevational view, partly in section, of a modified construction of my improved single-trigger mechanism. Fig. 13 is a top plan view of the same. Fig. 14 is an inverted plan view of the same. Fig. 15 is a detail side elevational view of a portion of one of the sears employed in carrying out my invention as illustrated in Figs. 12, 13, and 14. Fig. 16 is a detail side elevational view of a portion of the trigger employed in the construction illustrated in Figs. 12, 13, and 14; and Fig. 17 is an inverted perspective view of the slide employed in carrying out my invention as illustrated in Figs. 12, 13, and 14.

This invention relates to a new and useful improvement in single-trigger mechanism for guns having a plurality of barrels, one object being to enable the operator to successively release or trip the firing mechanism by the manipulation of a single mechanism in the form of a trigger.

Another object of this invention is to provide means to take care of what is known as the "involuntary" pull on the trigger, which frequently occurs immediately after the discharge of the shell or cartridge from one barrel when the operator manipulates the trigger with what is termed a "stiff finger" or does not immediately upon pulling the trigger relax the pressure of his finger on the same, which involuntary pull might result in firing the second barrel in quick succession.

With these objects in view the invention consists in the combination of a plurality of firing mechanisms and a single-trigger mechanism adapted to coöperate successively with all of said firing mechanisms or with but one of said firing mechanisms.

The invention also consists in the arrangement, construction, and combination of the several parts of my improved single-trigger mechanism, all as will hereinafter be more fully described and afterward pointed out in the claims.

In the drawings I have shown in Figs. 1, 2, 3, and 4 my improved single-trigger mechanism as applied to a well-known form of firing mechanism, which latter is illustrated solely for the purpose of showing the application of my device to a well-known construction; but it will be obvious to those skilled in the art to which my invention relates that the improved single-trigger mechanism hereinafter described can be applied to any form of firing mechanism, and therefore I do not wish to be understood as limiting myself to the particular form of firing mechanism shown.

In the drawings, A indicates what is known as the "frame," B the barrels, C the lifter arranged on the fore-end, (not shown,) D the hammer, E the sear, F the mainspring, G the trigger-tumbler, H the thumb-piece, I the tang, and J the top lever, all of said parts being practically of the usual and well-known construction of the firearm commonly called a "double-barrel hammerless shot-gun."

The general construction and operation of a double-barrel hammerless shot-gun is well understood, and a detailed description here is hardly necessary, but for purposes of ex-

planation may be briefly described as follows: The gun shown is of the breakdown type, and upon the release of the barrel-locking mechanism by the manipulation of the top lever J the barrels swing on a pivot (not shown) which, in addition to actuating the ejecting mechanism in general, also sets in motion the cocking mechanism, of which the lifter C, coöperating with the forwardly-projecting end of the hammer D, forms a part. When one or both barrels of the gun have been fired and it is desired to reload the gun, the top lever J is moved laterally, usually to the right, which movement unlocks the barrels, allowing them to swing on their pivot-point and eject or extract the shells, as the case may be, after which new shells may be inserted in the barrels. This movement also cocks the hammers of the gun, and simultaneously with the unlocking of the barrels the safety attachment is actuated, to which safety attachment is connected the thumb-piece H. This safety attachment consists of a slidable bolt K, directly operated by the top lever J, which bolt moves rearwardly when the lever is manipulated. A rocking lever L, suitably pivoted to a projection *a*, formed on or secured to the frame A, and whose lower end is provided with a transversely-disposed pin *l*, is designed to coöperate with a projection on the trigger-tumbler and prevent its upward movement when the gun is in a safe position. A bar M, pivotally connected to the upper end of the lever L, has its outer or free end directly in the path of movement of (and is designed to be struck by) the bolt K. The extreme upper end of this rocking lever L coöperates with two projections *l' l''*, depending from and secured to the thumb-piece H for actuating the latter, the projection *l''* being provided with a laterally-disposed pin *l'''*, which coöperates with a leaf-spring *i*, mounted upon the tang I, the object of which is to hold said thumb-piece in its extreme forward or rearward positions in order to prevent accidental movement of the same. The lower end of this rocking lever L is provided with a forwardly-disposed projection *l''''*, arranged at an angle to said bar L, the purpose of which will hereinafter be explained.

It will thus be seen from the above and from an inspection of Figs. 1 and 11 of the drawings that when the barrels of the gun have been swung on their pivot in the opening movement the hammers will have been cocked and the gun brought to a safe position, and after the barrels have been closed and locked in their position for firing the hammers will still remain cocked, but the slide-bolt K will have moved forwardly away from the free end of the bar M, so that when it is desired to fire the gun the thumb-piece H is moved forwardly and through the instrumentality of the projections *l'* and *l''* move the upper end of the lever L and the bar M forwardly and the lower end of said lever L and its carried pin rearwardly out of the path of movement of the projection formed on the trigger-tumbler G and permit of the upper movement of the latter.

Referring now to the construction illustrated in Figs. 1 to 11, inclusive, of the drawings, wherein I have added two pieces to the mechanism, which pieces are what might be termed a "stepping sear-controller" N and its "actuating-spring" O. The only material change made to the original construction of the gun is in the formation of the several notches or steps which I have provided in the trigger-tumbler G, which is designed to coöperate with the stepping sear-controller N, as will hereinafter be described.

While in the foregoing I have referred to G as a "trigger," I wish it here understood that it is in reality a "tumbler," and hereinafter I will refer to it as such, or, rather, as the "primary trigger-tumbler," and its companion G', I shall presently refer to as the "secondary tumbler."

The primary trigger-tumbler G is pivoted to a block or bearing *a''*, formed on the frame A of the gun, and is designed to have its web portion move through a slot *a'''*, formed in said frame, the finger portion of said primary trigger-tumbler being located below said frame, as is usual. Formed in the upper edge and near the rear end of the web portion of this primary trigger-tumbler G is a series of notches or steps, which I have numbered 1, 2, and 3, and projecting rearwardly over the notch 3 is formed an overhanging projection 4, the purpose of which will be presently explained.

The stepping sear-controller N, (see Fig. 10,) which is designed to coöperate with the notches or steps of the primary trigger-tumbler just described, consists of a strip of metal *n*, provided with a downwardly-extending bifurcated portion *n'*, the extreme ends of the two members *n''* and *n'''* of which are formed with forwardly-bent portions n^4 and n^5, or, in other words, these bent portions extend approximately toward the barrels of the gun. At the junction of the portion *n* and the downwardly-extending portion *n'* of this stepping sear-controller two steps or shoulders n^6 and n^7 are provided, the same being preferably made by first forming a slot n^8 in the portion *n* and then sawing two kerfs coincident with the longitudinal sides of the slot for a suitable distance into the portion *n'*, after which the strip or tongue between these saw-kerfs is bent or crimped into the desired shape, as will be readily understood. When this stepping sear-controller is in proper position in the gun and when the trigger is in its normal or lower position, it is designed to rest upon a bridge or projection a^4, its bent portion coöperating with one of the notches 1, 2, or 3, depending upon whether either one or both of the barrels of the gun have been fired. In order to hold and guide this stepping sear-controller in place in the performance of its work, I have made use of the screw or bolt P, employed in guns of this design to stiffen

and tie together the frame of the gun and the tang, said screw P passing through the slot n^8 and being secured to the bridge a^4. To further steady and guide this stepping sear-controller, I make use of the projection l'''', which passes through the slot forming the bifurcated portion n' of the stepping sear-controller.

It will be observed from the drawings that the spring O, which coöperates with the stepping sear-controller, is so located that its tension is exerted to force said stepping sear-controller forwardly and downwardly at all times and also that the free end or ends of said spring are afforded a convenient seat by the outwardly and downwardly bent portion, which carries the shoulders n^6 and n^7, and the portion n', adjacent the edges of said bent portion. (See particularly Fig. 11.)

While I have referred in the above to the primary trigger-tumbler only and its carried notches or steps, I will here state that there are two trigger-tumblers and that in the construction illustrated in Figs. 1 to 11, inclusive, I have omitted the finger projection on the second or right barrel trigger-tumbler, which I have termed the "secondary" tumbler and which I will now designate as G'. The finger portion of this secondary trigger-tumbler G' can, if desired, be retained, as is illustrated in dotted lines in Fig. 1. When only one trigger-tumbler is provided with the finger portion, the barrel controlled by that trigger-tumbler will always be the first to be fired; but when both tumblers retain their finger portions that trigger-tumbler which is first pulled will fire the barrel which it directly controls and then without removing the finger from that trigger-tumbler the other barrel can be fired by proper manipulation of the same. This secondary trigger-tumbler G' is provided with notches or steps and the overhanging projection, precisely the same as the stops or notches 1, 2, and 3 and the overhanging projection 4 of the primary trigger-tumbler G, and is preferably made with the same dies as is said trigger-tumbler G. When said notches and said overhanging projection of said secondary trigger-tumbler G' are referred to hereinafter, they will be designated as 1^a, 2^a, and 3^a and the overhanging projection as 4^a.

The construction and operation of the triggers, sears, and hammers of a gun of this type are so well known that I deem it unnecessary to give a detailed description of the same here; but for the sake of clearness I will mention that the sears, both left and right, coöperate with the primary trigger-tumbler G and the secondary tumbler G', respectively, in the same manner as they do with the triggers in any double-trigger gun—to wit, the upward movement of the triggers or tumblers causes the operation of the sears and effects the tripping of the hammers.

I will now describe the operation of my improved single-trigger mechanism and will call attention to Figs. 5 to 9, inclusive, of the drawings.

Fig. 5 represents a view of the parts as they appear after the gun has been cocked and in a position ready to be fired, and in which it will be observed that the primary trigger-tumbler is in its normal or lower position and the portion n of the stepping sear-controller is resting upon the bridge or projection a^4 and the first shoulder n^6 is resting against one side of said bridge a^4, and thereby arrests forward longitudinal movement of said stepping sear-controller. The bent portions n^4 and n^5 on the lower ends of the bifurcated portion n' are seated in the notches or steps 1 and 1^a of the primary trigger-tumbler G and secondary tumbler G', respectively. When the primary trigger-tumbler G is pulled and moves upwardly, the sear controlled by said trigger-tumbler will be actuated and release the hammer and fire the shell in one barrel—in this instance the left—and simultaneously with this movement the stepping-sear controller will be forced upwardly until its shoulder n^6 rises above the bridge a^4, whereupon the spring O will exert its pressure to move the stepping sear-controller longitudinally and forwardly until the free or forward end of said stepping sear-controller contacts with the block a''. The parts are now in the position shown in Fig. 6, it being understood that in this above-mentioned movement of the parts the secondary tumbler G' remained undisturbed, but the bent portion n^5 has been raised out of the step 1^a. When pressure on the trigger-tumbler G is relaxed and the same is allowed to recover its normal position, the parts will assume the position shown in Fig. 7, wherein it will be seen that when the trigger-tumbler descended the stepping sear-controller also descended until the downward movement of the latter was arrested by the contact of the under face of the shoulder n^6 with the bridge a^4, but at this stage the trigger-tumbler had not completed its full return movement and in doing so the notch or step 1 of said trigger-tumbler moved away from the bent portion n^5 and the spring O forced said stepping sear-controller in the proper direction to cause the bent portions n^4 and n^5 to register with and become engaged by the steps 2 and 2^a, respectively, of the trigger-tumblers G and G' and cause the second shoulder n^7 to bear against the side of the bridge a^4 and arrest further forward movement of said stepping sear-controller. The first barrel of the gun has now been fired, and by the construction shown in the accompanying drawings provision is made to take care of the involuntary pull due to the recoil of the gun, although I will here state that this feature of my invention may be dispensed with by omitting the steps 2 and 2^a of the triggers, which would mean that the second pull of the trigger would directly fire the second barrel. According to the construction shown the first

pull of the trigger will fire the first barrel, as above described, the second or involuntary pull will be intermediate and accomplish nothing, while the third pull will fire the second barrel. This involuntary pull, just referred to, if it occurs at all will take place just after the parts reach the position illustrated in Fig. 7 and is accounted for as follows: When the trigger-tumbler G is involuntarily pulled from its position in Fig. 7 to that of Fig. 8, it will be seen that said trigger-tumbler G in its upward movement raises the stepping sear-controller until its second shoulder n^7 rides above the bridge a^4, whereupon through the pressure of spring O the stepping sear-controller will move forwardly until the under face of said shoulder n^7 is directly above said bridge a^4. In this position of the parts the bent portion n^4 is still in the step 2 of trigger-tumbler G, while, as before, the secondary trigger-tumbler G′ has remained undisturbed and the bent portion n^5 will have moved out of the step 2^a of the secondary tumbler G′, which it just occupied. When the primary trigger-tumbler is relaxed, the parts will take the position illustrated in Fig. 9, and in so doing will have first caused the downward movement of the stepping sear-controller to be arrested by the under face of the shoulder n^7 contacting with the bridge a^4 and by the continued movement of the trigger-tumbler G will cause the notch 2 of said tumbler to move away from the bent portion n^4 and through the instrumentality of spring O cause the bent portions n^4 and n^5 to move into the steps 3 and 3^a of the primary trigger-tumbler G and secondary trigger-tumbler G′, respectively. It will be seen from the above that the trigger-tumbler G has been pulled twice, its first movement tripping the sear which it controls and firing its respective barrel, while the second pull of said trigger simply actuated the sear without result other than the idle movement of the latter, and during these two movements of the primary tumbler the secondary trigger-tumbler G′ remained undisturbed. The next movement of trigger-tumbler G from the position shown in Fig. 8 will cause both said trigger-tumbler G and the secondary trigger-tumbler G′ to be raised, which is due to the fact that both of the bent portions n^6 and n^7 are in their respective steps 3 and 3^a of trigger-tumblers G and G′ and also due to the fact that both of these steps 3 and 3^a are provided with the overhanging projections 4 and 4^a, respectively. Hence when the trigger-tumbler G is raised it in turn raises the stepping sear-controller and causes the bent portion n^7 to contact with the overhanging portion 4^a of the secondary trigger-tumbler G′ and raise the same, and in so doing will cause the sear which coöperates therewith to release the hammer and fire the second barrel of the gun. When both barrels of the gun have been fired and it is desired to reload the gun, the top lever J is moved to the right, which movement, aside from unlocking the barrels and setting the safety mechanism, performs the additional function of restoring the stepping sear-controller to its initial position. This latter is accomplished through the instrumentality of the slidable bolt K striking the free end of the stepping sear-controller and forcing the same rearwardly until the first shoulder n^6 is slightly beyond the bridge a^4 and the bent portions n^4 and n^5 are in their respective notches 1 and 1^a of the trigger-tumblers. The barrels now being swung on their pivots permit of the extraction of the exploded shells, and the unexploded shell may now be placed in the barrels and said barrels swung backwardly and locked in their proper firing positions.

In Figs. 12 to 17, inclusive, I have shown a slight modification of my invention, wherein it will be seen that I have dispensed with separate sears and in lieu thereof have formed a forwardly-extending portion G″ on both the primary and secondary trigger-tumblers G and G′, which forwardly-extending portions G″ coöperate with the hammers of the gun in like manner as did the ordinary sears. These trigger-tumblers, both primary and secondary, are each provided with the notches 1, 2, and 3 and the overhanging projection 4 and the notches 1^a, 2^a, and 3^a and the overhanging portion 4^a, respectively, and are designed to have coöperate therewith the stepping sear-controller N in like manner as they do in the construction illustrated in Figs. 1 to 11, inclusive. In this construction I make use of a single trigger G‴, the same being arranged between the trigger-tumblers G and G′ and is preferably pivoted at a point coincident with the pivot-point of the trigger-tumblers. Q indicates a slidable bar designed to be carried by and coöperate with the trigger G‴ and, depending upon its position on said trigger, will coöperate with one or the other of the primary or secondary trigger-tumblers G and G′ in order that the right or the left barrel of the gun will be fired first when the trigger is pulled, the second barrel of the gun being fired subsequent thereto in the same manner and by the employment of the same stepping sear-controller and its coöperating means as that heretofore described with reference to the construction illustrated in Figs. 1 to 11, inclusive, of the drawings. This bar Q is formed with a longitudinal slot q, designed to receive the web portion of trigger G‴ and rest upon the laterally-extending flanges g of the same, said bar Q being provided with an upturned portion q, formed on its rearmost end, and is provided with a slot q^2, through which passes a projection g', formed on the rearmost edge of the web portion of trigger G‴. As is clearly illustrated in Figs. 12 to 17, bar Q is formed with a sunken central portion, whereby only its ends will rest upon the lateral flanges g of the trigger. The object of this is to allow of a certain amount of spring of this central portion for

retaining said bar and its carried parts in a positive position. It will also be observed from the drawings that two lugs q^3 are formed on this bar Q, the purpose of which is to permit of the fastening of a finger-button R thereto, which finger-button is provided with a pointed or rounded projection formed on the end of its shank, which is designed to register with and become engaged by one or the other of two notches g^2 and g^3, formed in the under edge of the web portion of the trigger, it being obvious that a portion of the lateral flanges g are omitted at this point. The slot q, formed in the bar Q, is somewhat longer than that portion of the web of the trigger with which it coöperates, and by which construction independent longitudinal movement of bar Q on the trigger is allowed. When said bar Q is at the limit of its rearward stroke, as seen in Fig. 12, its upturned end q' is beyond the end of the primary trigger-tumbler G; and when in this position, if the trigger is pulled it will not move the same. The secondary trigger-tumbler G′ is made somewhat longer than its companion G, and in the position of the parts as illustrated in Fig. 12 is in the path of movement of said upturned end q', and when the trigger is pulled this secondary trigger-tumbler G′ will be forced upwardly and release the hammer which it controls and fire one barrel of the gun. The next movement of the trigger, through the instrumentality of the stepping sear-controller, (not shown in this figure, but which is identical with that illustrated in Figs. 1 to 11, inclusive,) will take care of the involuntary pull of the trigger, and the next or third pull of the trigger will fire the second barrel of the gun.

In the position of the parts just described, and illustrated in Fig. 12, the right-hand barrel of the gun will always be fired first, and when it is desired to have the left-hand barrel fire first the finger-button R and its carrier-bar Q are moved forwardly until the pointed projection on the shank of the button registers with and engages the notch g^2, which movement brings the upturned portion q' under the primary trigger-tumbler G and into registration with a slot or recess $g^\times$, formed in the under edge of the secondary trigger-tumbler G′, (see Fig. 15,) and in which position of the parts the raising of the trigger will raise only said primary trigger-tumbler G′ and cause the left barrel of the gun to be fired, as is obvious.

I am aware that minor changes in the arrangement, construction and combination of the several parts of my device can be made and substituted for those herein shown and described without in the least departing from the nature and principle of my invention.

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

1. The combination with a plurality of firing mechanisms, in which are included hammers and sears, of a primary trigger-tumbler for coöperating with one sear and hammer, a secondary trigger-tumbler for coöperating with the other sear and hammer, and an independently-operable stepping sear-controller coöperating with said primary trigger-tumbler and said secondary trigger-tumbler, and means for operating one of said trigger-tumblers independently of said stepping sear-controller whereby said secondary trigger-tumbler is actuated only after the primary trigger-tumbler has been independently manipulated; substantially as described.

2. The combination with a plurality of firing mechanisms, in which are included hammers and sears, of a primary trigger-tumbler for coöperating with one sear and hammer, a secondary trigger-tumbler for coöperating with the other sear and hammer, an independently-operable stepping sear-controller, means for causing said stepping sear-controller to coöperate with said primary trigger-tumbler and said secondary trigger-tumbler, and means for operating one of said trigger-tumblers independently of said stepping sear-controller whereby the latter is actuated only after the former has been independently manipulated; substantially as described.

3. The combination with a plurality of firing mechanisms, in which are included hammers and sears, of a primary trigger-tumbler for coöperating with one sear and hammer, a secondary trigger-tumbler for coöperating with the other sear and hammer, an independently-operable stepping sear-controller, a spring for causing said stepping sear-controller to coöperate with said primary trigger-tumbler and said secondary trigger-tumbler, and means for operating one of said trigger-tumblers independently of said stepping sear-controller whereby the latter is actuated only after the former has been independently manipulated; substantially as described.

4. The combination with a plurality of firing mechanisms, in which are included hammers and sears, of a primary trigger-tumbler for coöperating with one hammer and sear, a secondary trigger-tumbler for coöperating with the other hammer and sear, a plurality of steps or notches formed in said primary trigger-tumbler and secondary trigger-tumbler, an independently-operable stepping sear-controller for coöperating with said steps or notches in said primary trigger-tumbler and said secondary tumbler, a spring for causing said stepping sear-controller to engage with, and be retained in, one of the notches of either or both of said primary or said secondary trigger-tumblers, and means for operating one of said trigger-tumblers independently of said stepping sear-controller whereby the latter can be actuated only after the former has been independently manipulated; substantially as described.

5. The combination with a plurality of fir-

ing mechanisms, in which are included hammers and sears, of a primary trigger-tumbler for coöperating with one hammer and sear, a secondary trigger-tumbler for coöperating with the other hammer and sear, said primary trigger-tumbler and said secondary tumbler being each provided with a series of notches or steps, an independently-operable stepping sear-controller for coöperating with said notches in said primary trigger-tumbler and said secondary tumbler, a spring for coöperating with said stepping sear-controller for causing the same to properly coöperate with the notches in said primary trigger-tumbler and said secondary tumbler, a shoulder formed on said stepping sear-controller, means for operating one of said trigger-tumblers independently of said stepping sear-controller and a support for the stepping sear-controller, and with which said shoulder cooperates in the performance of its work; substantially as described.

6. The combination with a firing mechanism, of a trigger, a trigger-tumbler common to said trigger and said firing mechanism, said trigger-tumbler being hinged or pivoted at one end, and being provided with steps or notches 1 and 3, and an overhanging portion 4, at its other end, and a stepping sear-controller coöperating with said notches and said overhanging portion; substantially as described.

7. The combination with a firing mechanism, of a trigger, a trigger-tumbler common to said trigger and said firing mechanism, and a stepping sear-controller coöperating with said trigger-tumbler, said sear-controller consisting of a flat bar having a bent portion and a shoulder formed approximately at the junction of said flat and bent portions, the free end of said bent portion having an inturned lip for coöperating with notches in the trigger-tumbler; substantially as described.

8. The combination with a firing mechanism, of a trigger, a trigger-tumbler common to said trigger and said firing mechanism, and a stepping sear-controller consisting of a body portion n, a bifurcated portion n' arranged at an angle thereto, the two prongs of the bifurcated portion having inturned lips n^4 and n^5, and a shoulder n^6 located at approximately the junction of the portions n and n'; substantially as described.

9. The combination with a firing mechanism, of a trigger, a trigger-tumbler common to said trigger and said firing mechanism, and a stepping sear-controller consisting of a body portion n, a bifurcated portion n' arranged at an angle thereto, the prongs of said bifurcated portion having inturned lips n^4 and n^5, and shoulders n^6 and n^7 arranged at the junction of the portions n and n'; substantially as described.

10. In a double-barrel, breakdown gun, the combination with the hammers, sears, top lever and slidable bolt K, of a primary trigger-tumbler for coöperating with one hammer and sear, a secondary trigger-tumbler for coöperating with the other hammer and sear, said primary trigger-tumbler and said secondary tumbler being each provided with a series of notches or steps, an independently-operable stepping sear-controller for coöperating with said notches in said primary trigger-tumbler and said secondary tumbler and connecting said tumblers together when said stepping sear-controller is in certain positions, and a spring for forcing said stepping sear-controller forwardly when the same is released by the proper manipulation of the primary trigger-tumbler in the performance of its work, the free or outer end of said stepping sear-controller being located directly in the path of movement of, and designed to be struck by, the bolt K in its rearward movement, when the top lever is properly manipulated to unlock the barrels of the gun; substantially as described.

11. The combination with a plurality of firing mechanisms, in which are included hammers and sears, of a primary trigger-tumbler for coöperating with one sear and hammer, a secondary trigger-tumbler for coöperating with the other sear and hammer, and an independently-operable stepping sear-controller coöperating with said primary trigger-tumbler and said secondary tumbler for preventing the second or involuntary pull of said primary trigger-tumbler from actuating said secondary trigger-tumbler but permitting a third pull of said primary trigger-tumbler to actuate said secondary tumbler; substantially as described.

12. The combination with a plurality of firing mechanisms, in which are included hammers and sears, of a primary trigger-tumbler for coöperating with one sear and hammer, a secondary trigger-tumbler for coöperating with the other sear and hammer, an independently-operable stepping sear-controller, and means for causing said stepping sear-controller to coöperate with said primary trigger-tumbler in such manner that the second or involuntary pull of said primary trigger-tumbler will not actuate said secondary trigger-tumbler, but will permit said secondary tumbler to be actuated only upon a third pull of said primary tumbler; substantially as described.

13. In a breakdown gun, the combination with a pair of trigger-tumblers, of a pair of hammers which are actuated thereby, an independently-operable stepping sear-controller for coöperating with said tumblers, and means for actuating one or the other of said tumblers first, independently of said stepping sear-controller whereby the other trigger-tumbler not actuated first, will be actuated by said stepping sear-controller upon a subsequent manipulation of said means; substantially as described.

14. In a breakdown gun, the combination with a pair of trigger-tumblers of a pair of hammers which are actuated thereby, an in-

dependently-operable stepping sear-controller for coöperating with said tumblers, a single trigger for coöperating with one or the other of said trigger-tumblers, and means carried by said single trigger and extending to the exterior, which means, when manipulated to one of its two positions, will cause one or the other of said trigger-tumblers to be actuated first, the other of said trigger-tumblers being actuated by said stepping sear-controller upon a pull of said single trigger subsequent to the pull which actuated the first tumbler; substantially as described.

15. The combination with a pair of tumblers for a device of the character described, of an independently-operable stepping sear-controller for coöperating with the same, a single trigger, a slide-bar arranged on, and carried by, said single trigger, said slide-bar being provided with a projection designed to coöperate with one or the other of said tumblers, and means carried by said slide-bar and coöperating with said single trigger for determining the position of the former, one of said tumblers being of greater length than its companion and being provided with a notch, whereby, when said slide-bar is in its extreme rearward position, the upper movement of said single trigger will permit the projection formed on the slide-bar which is carried by said trigger, to pass by and not disturb the shorter tumbler, but will contact with and raise the longer tumbler, and, when said slide-bar is in its foremost position, said projection on said slide-bar will, in the upward movement of said trigger, contact with the shorter tumbler and raise the same, said projection registering with, and moving into, the notch formed in the longer tumbler, and by so doing leaves said longer tumbler undisturbed; substantially as described.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 19th day of October, 1900.

CHARLES E. DE LONG.

Witnesses:

ROBERT W. THRASHER,

WILLIAM A. WORLEY.