

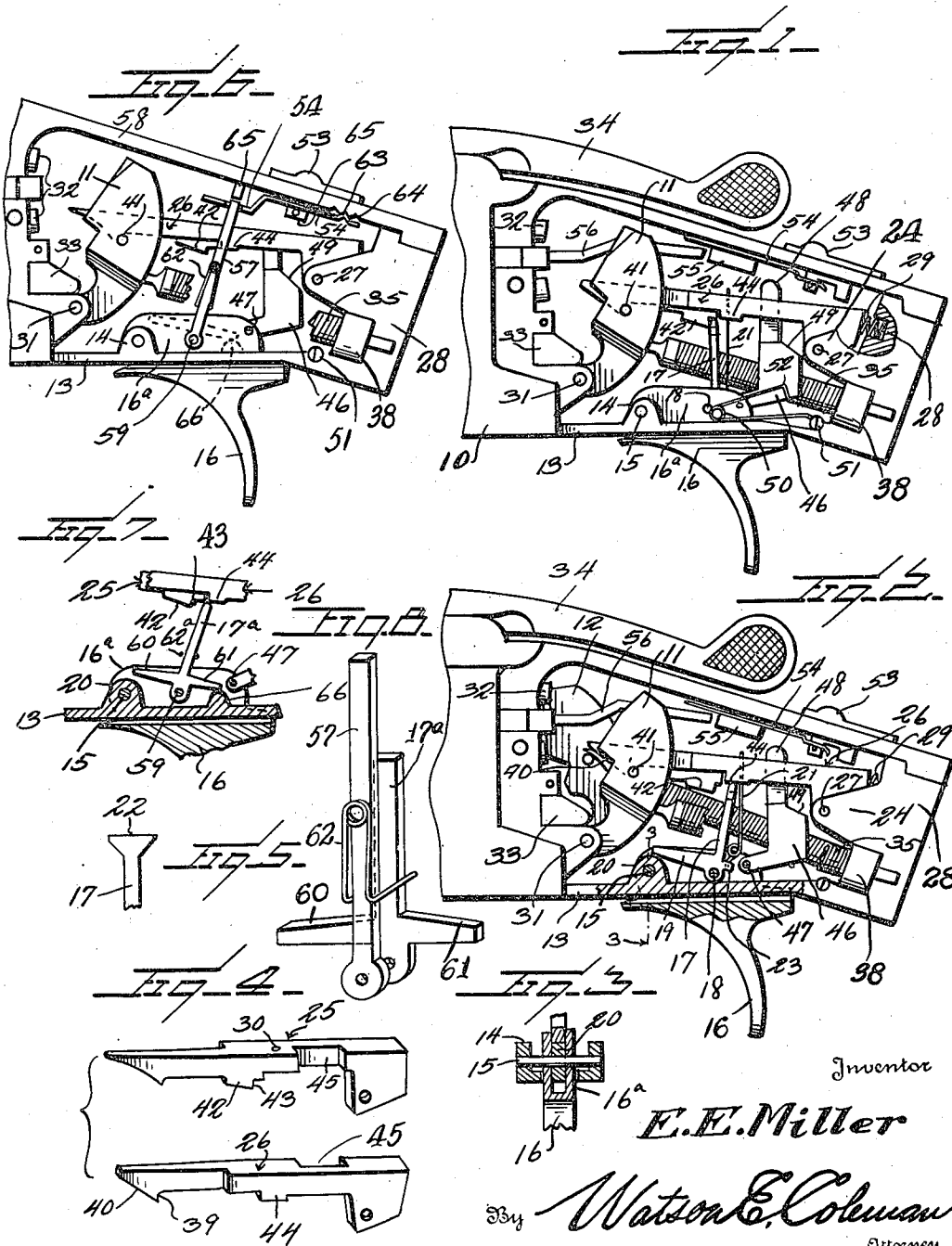
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SINGLE TRIGGER MECHANISM FOR DOUBLE-BARRELED GUNS

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SINGLE TRIGGER MECHANISM FOR
DOUBLE-BARRELED GUNS

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This invention relates to single trigger actions for double-barreled guns.

In the ordinary single trigger mechanism such, for instance, as is disclosed in my prior patents Nos. 1,544,673, 1,725,663 and 1,898,255, the trip which releases the sears moves laterally upon the pull of the trigger to thereby release one sear from engagement with its corresponding hammer and then moves laterally in the opposite direction upon a second pull of the trigger to release the other sear and the hammer. Recently a new action has been put upon the market in which the two hammers are cocked when the locking or snap lever is operated to permit the gun to be broken at the breech, and in this new action the safety catch is automatically shifted to lock the hammer in retracted position when the gun is closed. With this action, it is impossible to use the type of single trigger mechanism heretofore in use such as above referred to, because there is no room therefor in the new action.

The general object of my invention, therefore, is to provide a single trigger mechanism which is extremely simple and which is particularly compact and which will effectively operate in conjunction with the new type of action and which will fire one barrel upon the first pull of the trigger and then automatically provide for the firing of the other barrel upon a second pull of the trigger.

A further object is to provide means, coacting with my improved trigger action, including an inertia actuated weight which will prevent "doubles" or the firing of both barrels nearly simultaneously due to the recoil of the gun or the reflex action of the trigger finger.

A still further object is to provide means whereby this trigger action may be made either for the automatic firing of one barrel and then the second barrel without selection or to so construct the action that it may be made selective so that the gunner can select which barrel he will fire first.

Other objects will appear in the course of the following description.

An embodiment of my invention is illustrated in the accompanying drawing wherein:

Fig. 1 is a side elevation of the breech frame of a double-barreled gun showing my improvement applied thereto, the parts being in the position taken when the hammers are cocked and the breech is closed.

Fig. 2 is a like view to Fig. 1 but with parts broken away and showing the position of the several parts of the gun when one hammer has

been projected but the other hammer is still cocked.

Fig. 3 is a section on the line 3—3 of Fig. 2.

Fig. 4 is a perspective view of the two sears disposed in parallel relation to each other.

Fig. 5 is a fragmentary elevation of the upper end of the trip.

Fig. 6 is a side elevation partly broken away of a modified form of my construction.

Fig. 7 is a fragmentary sectional view of the lower tang and trigger, the trip and sears being in elevation.

Fig. 8 is a fragmentary section on the line 8—8 of Fig. 6.

Referring to the drawing, 10 designates the breech frame of a double-barreled firearm. Mounted within the frame 10 are the hammers 11 and 12, the hammer 12 not being seen in Fig. 1, inasmuch as it is immediately behind the hammer 11, both of these hammers being in a retracted position ready for firing. The lower tang 13 of the frame is formed with the bearing lugs 14 and pivoted on a pin 15 passing through these lugs is the trigger 16 urged upward by a spring 50, as will be later described. This trigger, as shown in Fig. 3, has a longitudinally extending groove in its upper edge face. Pivoted within this groove is the trip 17, this trip being pivoted upon the pin 18. The trip is provided with a forwardly projecting arm 19 which in one position of the parts, as will be later described, and after a hammer has been released, engages with a medially disposed bearing element 20 shown in Fig. 3. The upper end of the trip 17 is widened at 22, as shown in Fig. 5. A spring 21 is attached at its lower end in an apertured lug 23 projecting rearwardly from the lower end of the trip 17, this spring extending upward and extending through an opening in one of the sears.

Pivoted upon lugs 24 projecting from the rear end of the frame 10 and disposed between these lugs are the two sears 25 and 26. Each of these sears is pivoted upon a pin 27 passing through the lugs 24. Each of these sears is bored inward from its rear end and disposed within the bore of each sear and within a recess formed in the element 28 of the frame is a coiled compression spring 29 that urges the forward end of the sear downward. As before stated, the spring 21 extends at its upper end through an aperture in one of these sears as, for instance, the aperture 30 shown in the sear 25 of Fig. 4 and urges the trip 17 to the position shown in Fig. 1. The hammers 11 and 12 are pivoted upon a pivot pin 31 carried by the forward end of the frame and

these hammers, of course, coact with the usual firing pins 32 in the usual manner. The hammers are cocked by mechanism which forms no part of my invention and which includes a rearwardly movable element 33 which engages against the forward faces of the hammers and urges these hammers rearward when the snap lever 34 has been operated to permit the gun to "break" so that when the gun is again closed, the hammers are in a raised position and latched in this position by a safety device which forms no part of my invention. The hammers are projected by the two coiled compression springs 35 carried at their rear ends upon the member 38 and at their forward ends bearing against the rear faces of the hammers. The forward ends of the sears 25 and 26 are formed with downwardly extending lugs 39, the forward faces of which are upwardly inclined, as at 40. These lugs engage over inwardly projecting pins 41 on the respective hammers. The sears are disposed between these hammers. The sear 25 is formed on its underface with a downwardly extending lug 42, the rear face of which is formed with a notch 43 adapted to be engaged by the trip 17 when the trip is in its forwardmost position, as shown in Fig. 1. The sear 26 is also provided with a lug 44 which has a lower flat face and which is disposed slightly rearwardly of the lug 42 and particularly of the notch 43 in this lug. Each sear, as shown in Fig. 4, is formed on its inside face with a relatively deep and relatively long notch 45, for a purpose to be later stated.

For the purpose of preventing double firing, that is, involuntary firing of the second barrel immediately after the first barrel has been discharged, I provide an inertia actuated weight 46. This weight 46 has a forwardly projecting arm pivoted at 47 to the slotted portion 16^a of the trigger 16, this arm being disposed within the slot of said portion 16^a. This weight has an upwardly extending finger 48 which extends through the slot defined by the recesses or notches 45 in the confronting portions of the sears 25 and 26, as shown in Figure 4, and this weight also has a rearwardly and upwardly facing shoulder 49 which, when the weight swings backward under the recoil of the gun, comes beneath the butt end of both of the sears 25 and 26 at a point adjacent to the pivot pin for the sears or beneath any abutment as, for instance, beneath the lug or lugs 24. A spring 50 shown in Fig. 1, has one end engaged with a pin or screw 51, and the other arm 52 engaged beneath the lower end of the weight, so that it tends to move the weight upward and forward.

The action of this inertia operated weight is to prevent "doubles". When the trigger is first pulled and the gun is fired, the recoil of the gun carries it rearward and then the gun rebounds forward and as a consequence, a second pressure comes upon the trigger which would, if not prevented, cause the firing of the second barrel immediately and without intention on the part of the gunner. With this weight, however, upon the recoil of the gun, the weight swings rearward until the shoulder 49 comes beneath the butt ends of the sears. Upon the rebound of the gun, pressure comes upon the trigger but the trigger cannot be lifted because of the fact that the shoulder 49 is disposed beneath the butt end of the sears and the trigger cannot be pulled. This action occurs each time that the gun is fired.

The safety slide 53 when it is drawn fully rearward, carries with it the spring 54, which car-

ries upon it the block 55. When the safety slide is rearward, this block 55 is disposed immediately above the finger 48 of weight 46 and thus prevents any pulling of the trigger until the safety slide 53 has been moved forward to the positions shown in Figs. 1 and 2. Means are provided whereby when the gun is broken, this safety slide is shifted to a safety position, this means including the longitudinally movable rod 56. The safety slide with its block 53 and the rod 56 form no part of my present invention but are to be found on many guns.

It is to be understood that the trigger is normally urged upward by the action of spring 50. This spring has one leg engaging against the lower tang 13 and its other leg engaging at 52 with the weight 46. Inasmuch as this weight is pivoted to the trigger at 47, the trigger will be urged upward.

With the parts in the position shown in Fig. 1, 20 both sears are lifted somewhat against the action of the sear springs 29 and the trigger is lifted by the spring 50, so that the arm 19 of trip 17 is just in contact with the upwardly projecting lug 20. The upper end of the trip 17 is in contact with notch 43 at the rear end of lug 42 on sear 25. When the trigger is pulled, it releases the sear 25 from its engagement with pin 41 on the hammer 12, and the sear 25 moves downward under the action of its spring 28, moving the trip post 17 downward and moving the trigger downward to a position slightly below its normal position, the strength of sear spring 28 being greater than the strength of spring 50. This occurs as soon as the pressure of the finger on the trigger is relaxed. The downward movement of the trip 17 carries the arm 19 downward, which brings the end of the arm against the lug 20 and tilts the trip rearward, bringing its upper end beneath the lug 44 on sear 26 ready for the next actuation, as shown in Fig. 2. If now the trigger be again pulled, the sear 26 will be lifted by the trip and will release the hammer 11. Thus it will be seen that I have provided very simple but thoroughly effective means whereby first one barrel and then the other may be fired upon successive pulls on the trigger.

In the mechanism illustrated, every time that the snap lever 12 is shifted to open the gun, the hammers are cocked automatically, this cocking action forming no part of my invention. As the gun is closed, the rod 56 automatically shifts the block 53 to its safety position and before the gun can be fired, the slide 53 must be pushed forward to the position shown in Figs. 1 and 2. While I have heretofore described a non-selective firing mechanism for double-barreled guns, yet it is within the purview of my invention to provide means whereby the action may be made selective. This modification of the structure shown in Figs. 1 and 2 is illustrated in Figs. 6 and 7.

In Figs. 6 and 7, I have illustrated a modification of my structure in which the order of firing the barrels is selective, in other words, the gunner may fire the left-hand barrel first and then the right-hand barrel or fire the right-hand barrel first and then the left-hand barrel. In these figures, 16^a designates the upper portion of the trigger as before. Pivotaly mounted on the portion 16^a by a pin 59 is a post 57 which extends upward nearly to the upper tang 58 of the gun frame. The trip 17^a is also pivotaly mounted on the pin 59 and this trip 17^a instead of having a single arm, is formed like a double bell crank lever with a forwardly projecting arm 75

60 and a rearwardly projecting arm 61. It will be seen that the trip is pivoted in the same manner as before described for the trip 17 and engages the two sears 25 and 26 exactly as heretofore described.

Mounted upon the post 57 is a spring 62 (see Fig. 8) having two resilient arms which at their ends are angularly bent at 62^a to embrace the post and extend on each side of the trip 17^a. The trip is normally, therefore, yieldingly urged or held into register with the post by the arms of the spring but can be rocked upon its pivot pin independently of the post 57 so as to bring the upper end of the trip beneath one or the other of the sear lugs. The spring 62 is the equivalent of the spring 21 in that it yieldingly resists the movement of the trip under the action of the abutment 20 or the abutment 66.

The post 57 at its upper end is engaged by the resilient spring strip 54 of the safety slide 53 and this spring 54 has at its rear end the usual dent 63 engageable in any one of the notches 64. Immediately above the post 57, when the latter is in its neutral position, is a lug 65 projecting downward from the upper tang of the frame, which lug prevents the upward movement of the trigger by engagement with the upper end of the post 57 when the safety slide is in its middle position.

In Fig. 6 the trigger is urged upward by a light spring 50 having exactly the same character as the spring shown in Fig. 1, but which is omitted from Fig. 6, as it would interfere with the showing of the double trip 62. In Fig. 6 the post 57^a is shown as disposed beneath the lug 65 so that the trigger cannot be pulled or, in other words, the slide 53 is "on safety". Assuming, however, that the slide is shifted rearward, this will shift the post 57 rearward, carrying with it the trip 62 to the position shown in Fig. 7. With the parts in this position, the trip 17^a is disposed beneath the lug 44 of sear 26. When the trigger is pulled, the hammer 11 will be released and sear 26 will snap downward under the action of its spring 29, forcing the trip 17^a and the trigger downward slightly beyond the normal position of the trigger. This causes arm 61 to strike lug 66 which causes the trip 17^a to tilt forward bringing its upper end beneath the lug 42 of sear 25 and bringing the forward arm 60 of the trip just above or just in contact with the lug 20, it being remembered that sear 25 is still in its raised position so that the trigger and the trip can lift slightly under the action of its spring 50 while the trip is moving forward without the arm 60 coming into such engagement with the lug 20 as would prevent the forward movement of the trip. This forward movement of the trip 17^a relative to the part 57 and the safety slide is permitted by the spring 62^a of post 57.

If it be desired to fire the right-hand barrel first, then the post 57 is shifted by slide 53 to a position to carry the trip 62 beneath the lug 42 of the sear 25. The spring 50 (not shown in Fig. 6, for the reason stated) will lift the trigger and tripping post 20, so that the arm 60 only just touches the lug 20. Upon the release of the hammer 11, the sear 25 will snap downward under the action of its sear spring and will force the trigger downward below its normal position causing arm 60 to strike the lug 20. As this arm 60 is prevented by the lug 20 from moving farther downward, while the trigger continues its downward movement under the action of the sear spring, the trip 17^a will be tilted rearward

into position beneath the lug 44, thus preparing the arm for a second actuation which will release the left-hand trigger 11.

It will thus be seen that I have provided a single trigger action which may be either non-selective or selective as desired and that in both forms of my device, the trip operates or tilts longitudinally of the gun instead of transversely thereof, as illustrated in my former patents. The action shown in Figs. 1 and 2 is particularly adapted for use with the new Savage "over and under" action. The second embodiment of my invention is particularly designed for use with the Remington action, but it is to be understood that my single trigger action may be readily adapted to all different forms of double-barreled guns by slight modification or re-arrangement of parts to suit the particular mechanism of the action with which my single trigger mechanism is associated.

One of the advantages of my construction lies in the fact that it is particularly compact and very simple with fewer parts than are necessary where the trip is required to tilt laterally or transversely of the gun. Furthermore, trips which operate laterally are very liable to become loose and "wobbly". This is entirely overcome in my construction because the trip moves back and forth and it is guided at its lower end between the walls of the groove in the portion 16^a of the trigger so that it has no chance to get out of position. It is furthermore one of the important features of my invention that the sears in my construction are hinged at their rear ends and at the rear end of the breech frame and engage at their forward ends with the hammers. By this construction, there is less tension upon the notches 39 of the sears and upon those portions of the hammers with which the sears engage and, furthermore, there is less liability to wear because of this lack of tension and strain. This construction also causes the sears, when released, to move downward and force the trigger downward below its normal position and against the action of the spring 50. Of course, the object and advantage of the inertia controlled weight for the purpose of preventing doubles is obvious and has heretofore been adverted to.

While I have illustrated certain details of construction and a certain specific arrangement of parts, I do not wish to be limited thereto, as it is obvious that variations might be made therein to suit various makes of guns without departing from the spirit of my invention.

What is claimed is:—

1. A single trigger mechanism for double-barreled guns having two hammers and a single trigger; including two sears coacting with the respective hammers, a trip pivoted upon the trigger for swinging movement longitudinally of the gun, the sears each having a depending lug, the lug of one sear being disposed rearward of the lug of the other sear and the trip being initially in operative position beneath the lug of one sear, and means constructed and arranged to positively engage with and automatically shift the trip in either direction from beneath the lug of the first named sear to a position beneath the lug of the other sear upon the release of the trigger after the firing of one barrel.

2. A single trigger mechanism for double-barreled guns having two hammers and a single trigger; including two sears coacting with the respective hammers, a trip pivoted upon the trigger for swinging movement longitudinally of the gun,

the sears each having a depending lug, the lug of one sear being disposed rearward of the lug of the other sear and the trip being initially in operative position beneath the lug of one sear, means constructed and arranged to automatically shift the trip from beneath the lug of the first named sear to a position beneath the lug of the other sear upon the release of the trigger after the firing of one barrel, and manually adjustable means operatively connected to the trip and shiftable to carry the trip initially into operative position beneath either sear which may be selected for initial release.

3. A single trigger mechanism for double-barreled guns having two hammers and a single trigger; including two sears coacting with the respective hammers, a trip pivoted upon the trigger for swinging movement longitudinally of the gun, the sears each having a depending lug, the lug of one sear being disposed rearward of the lug of the other sear and the trip being initially in operative position beneath the lug of one sear, means constructed and arranged to automatically shift the trip from beneath the lug of the first named sear to a position beneath the lug of the other sear upon the release of the trigger after the firing of one barrel, and a manually adjustable slide mounted upon the frame of the gun and operatively connected to the trip to shift the trip initially into operative position beneath a selected sear to thereby secure the initial release of said sear upon the initial retraction of the trigger.

4. A single trigger mechanism for double-barreled guns having two hammers and a single trigger; including two sears coacting with the respective hammers, a trip pivoted upon the trigger for swinging movement longitudinally of the gun, the trip having a longitudinally extending arm, the sears each having a depending lug, the lug of one sear being disposed rearward of the lug of the other sear and the trip being initially in operative position beneath the lug of one pair, and an abutment disposed beneath the arm of the trip and engageable therewith to shift the trip from beneath the lug of the first named sear to a position beneath the lug of the other sear upon the release of the trigger after the firing of one barrel.

5. A single trigger mechanism for double-barreled guns having two hammers and a single trigger; including two sears coacting with the respective hammers, the sears each having a depending lug, the lug of one sear being disposed rearward of the lug of the other sear, a post mounted upon the trigger for movement longitudinally of the gun, a trip pivoted upon the trigger for longitudinal movement, the trip being initially in operative position beneath the lug of one sear but movable into position beneath the lug of the other sear, and a manually operable slide on the gun engaged with the upper end of the post and shiftable to carry the upper end of the post forward or rearward and means constructed and arranged to automatically shift the trip from beneath the lug of the sear beneath which it has been adjusted to a position beneath the lug of the other sear upon the release of the trigger after the firing of one barrel.

6. A single trigger mechanism for double-barreled guns having two hammers and a single trigger; including two sears coacting with the respective hammers, the sears each having a depending lug, the lug of one sear being disposed rearward of the lug of the other sear, a post

mounted upon the trigger for swinging movement longitudinally of the gun, a trip pivoted upon the trigger for longitudinal swinging movement, the trip having oppositely directed arms at its lower end, a manually operable slide mounted upon the upper tang of the gun and operatively engaged with the upper end of the post and shiftable to carry the post forward or rearward, a spring mounted upon the post and engaging on each side of the trip whereby to carry the trip beneath one or the other of the sears as the post is shifted by the slide, and abutments disposed beneath the ends of the opposite arms of the trip and engageable with the trip when the trigger is lowered to shift the trip from a position beneath one sear to a position beneath the other sear upon the release of the trigger after the firing of one barrel.

7. A single trigger mechanism for double-barreled guns having two hammers and a single trigger including two sears coacting with the respective hammers, the sears each having a depending lug, the lug of one sear being disposed rearward of the lug of the other sear, a post pivoted upon the trigger for swinging movement longitudinally of the gun, a trip pivoted upon the trigger for longitudinal swinging movement, the trip having two arms extending in opposite directions from the lower end of the trip, the post having a spring engaging on opposite edges of the trip, a safety slide mounted upon the upper tang of the gun and operatively connected to the upper end of the post, the slide having a detent whereby it may be held in a neutral position or in a forwardly or rearwardly shifted position, the upper tang of the gun having a stop which when the slide is in a neutral position is disposed immediately above the post and prevents the upward movement of the trigger and post, and abutments on the lower tang of the gun engaging the forward and rearwardly extending arms of the trip upon a depression of the trigger after firing to cause the shifting of the trip from beneath the lug of one sear to a position beneath the lug of the other sear.

8. In a single trigger mechanism for double-barreled guns having two hammers and a single trigger, sears each pivoted at one end, a spring for each sear urging the other end downward into engagement with the hammer when the corresponding hammer is raised, a trip pivoted on the trigger for movement in opposite directions, means separate from the sears for urging the trip into operative engagement with one of the sears, and means operable upon a release of a sear by the trip and the downward movement of the trip and trigger under the action of the sear depressing spring, said means directly and positively engaging the trip as it is lowered and shifting it into position beneath and in operative relation to the other sear.

9. In a single trigger mechanism for double-barreled guns having two hammers and a single trigger, sears each pivoted at its rear end, a spring for each sear urging the forward end downward into engagement with the corresponding hammer when the said hammer is raised, a trip pivoted on the trigger for forward and rearward movement, manually operable means for initially and selectively disposing the trip in operative relation to either sear, and means operating upon release of a sear by the trip and the downward movement of the trip and trigger under the action of the sear depressing spring, said means positively engaging the trip and shifting it in position

beneath and in operative relation to the other sear.

10. In a single trigger mechanism for double-barreled guns having two hammers and a single trigger, sears each pivoted adjacent its rear end, a spring for each sear urging the forward end downward into engagement with the corresponding hammer when the latter is raised, a trip pivoted on the trigger for forward and rearward movement in opposite directions, means urging the trip into operative engagement with one of the sears, and means, operating upon a release of a sear by the trip and the downward movement of the trip and trigger under the action of a sear depressing spring, said means positively engaging the trip and shifting it into position beneath and in operative relation to the other sear.

11. In a single trigger mechanism for double-barreled guns having two hammers and a single trigger, sears coacting with the hammers and each urged into engagement with the corresponding hammer when the corresponding hammer is raised, a trip pivoted on the trigger for movement in opposite directions, the trip at its lower end having two arms projecting in opposite directions, and two upwardly protuberant portions mounted upon the frame of the gun immediately beneath the trip and operable upon a release of a sear by the trip and a downward movement of the trip and trigger to directly and positively engage one of the arms as the trip is lowered and shift the trip into position beneath and in operative relation to the other sear.

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