June 29, 1937. P. GIOVANNETTI 2,085,258

TRIGGER MECHANISM

Filed Sept. 1, 1936 2 Sheets-Sheet 1

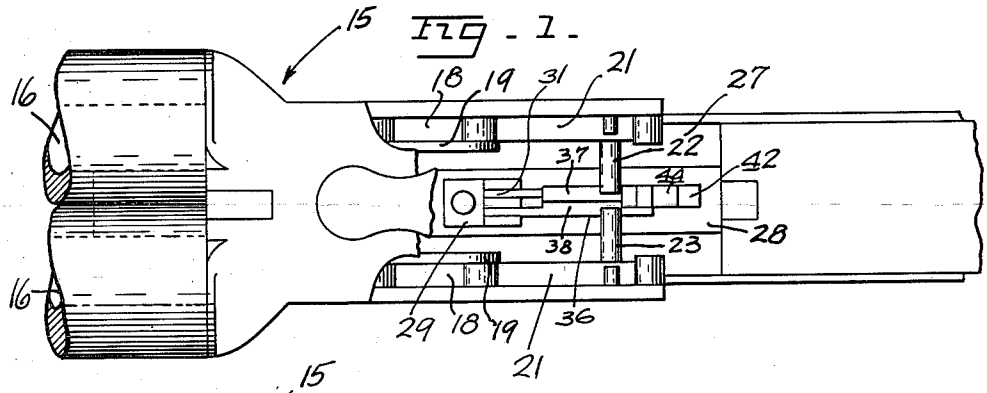


Fig. 1.

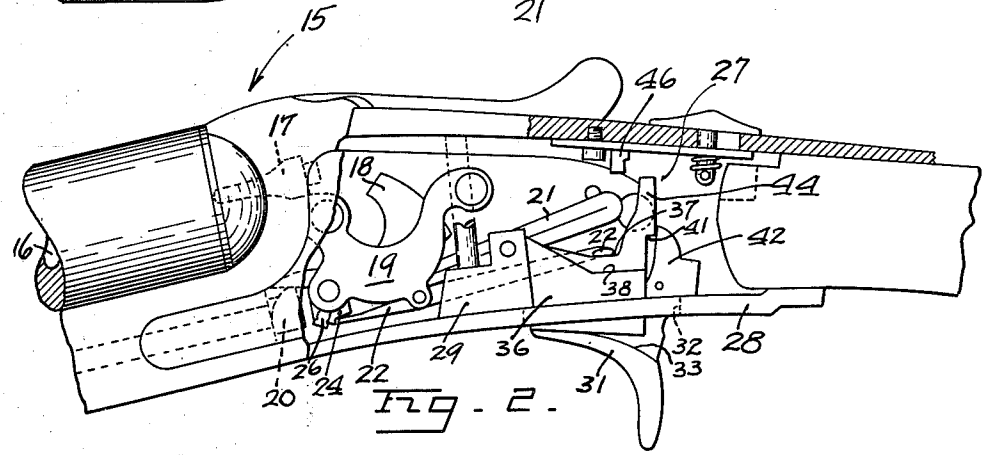


Fig. 2.

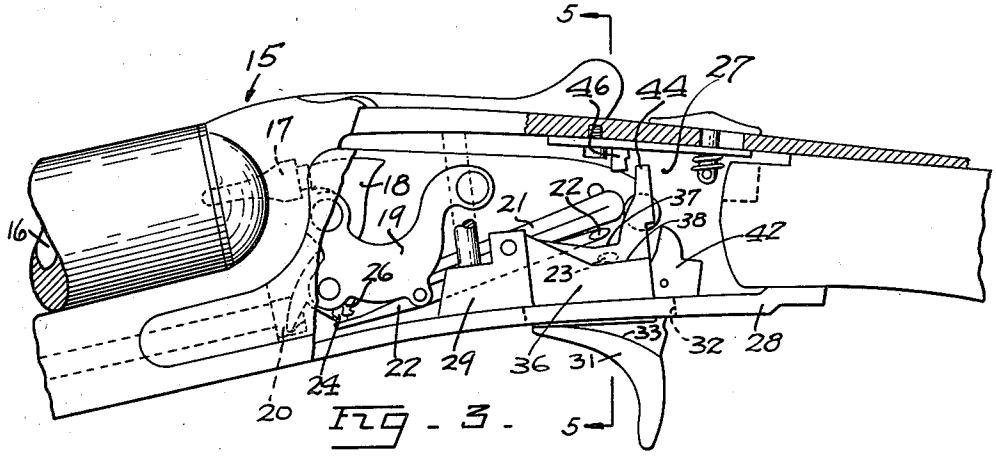


Fig. 3.

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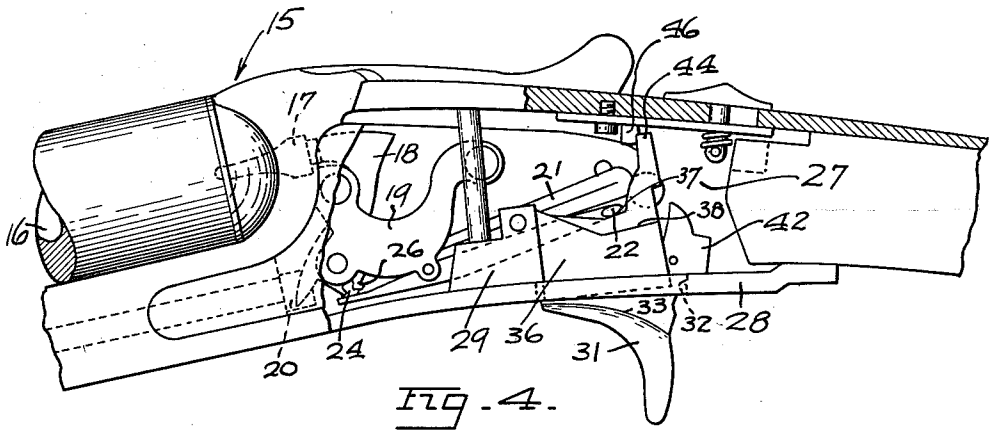
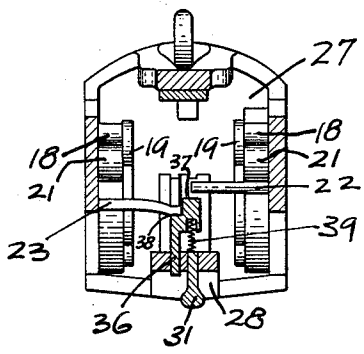


Fig. 4.

Fig. 5.



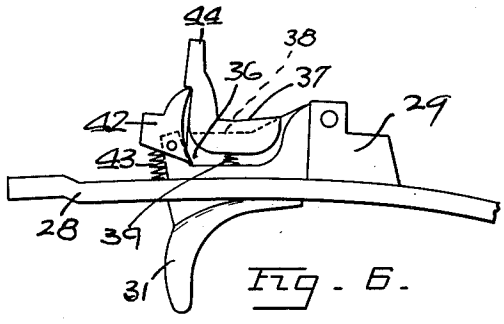


Fig. 6.

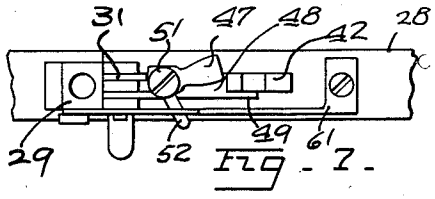


Fig. 7.

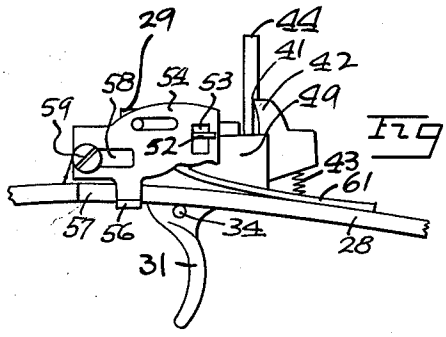


Fig. 8.

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2,085,258

TRIGGER MECHANISM

Peter Giovannetti, San Francisco, Calif.

Application September 1, 1936, Serial No. 98,938

4 Claims. (Cl. 42—42)

This invention relates to a trigger mechanism.

An object of the invention is to provide a trigger mechanism particularly adapted for use in connection with firearms wherein more than one charge of ammunition is loaded, and the ammunition is fired separately and successively; the trigger mechanism having only a single trigger and having means whereby repeated normal pulling of the single trigger causes successive firing from the loaded firearm.

It is a further object of the invention to provide a single trigger mechanism which fits into the usual stock of a double barrel firearm and which can safely lift the usual sears of the firearm one by one upon successive normal pulling of the single trigger; said single trigger mechanism being adapted to be assembled in the usual firearm without necessitating any changing of the usual stock or of the usual sears of the firearm.

A further object of the invention is to provide a single trigger mechanism for a double barrel firearm which acts on the sears separately and positively, and in which simultaneous firing through both barrels is positively obviated at all times, and which allows the use of a quick acting trigger without danger of accidental discharge.

Another object of this invention is to provide a trigger mechanism which is highly useful and simple in construction. Convenience of arrangement, lightness and comparative inexpense of manufacture are further objects which have been borne in mind in the production and development of the invention.

I am aware that some changes may be made in the general arrangements and combinations of the several devices and parts, as well as in the details of the construction thereof without departing from the scope of the present invention as set forth in the following specification, and as defined in the following claims; hence I do not limit my invention to the exact arrangements and combinations of the said device and parts as described in the said specification, nor do I confine myself to the exact details of the construction of the said parts as illustrated in the accompanying drawings.

With the foregoing and other objects in view, which will be made manifest in the following detailed description and specifically pointed out in the appended claims, reference is had to the accompanying drawings for the illustrative embodiment of the invention, wherein:

Figure 1 is a fragmental plan view of a double barrel shotgun, the cover being partly broken away to show the firing mechanism.

Figure 2 is a side view partly in section of the firing and trigger mechanisms assembled in the usual gun, showing the mechanism in cocked position.

Figure 3 is a side view of the trigger mechanism showing one of the sears lifted, and the other sear ready to be fired.

Figure 4 is a side view showing the trigger mechanism after the second sear also was lifted and after the second firing of the gun.

Figure 5 is a cross sectional view, the section being taken on the line **5—5** of Fig. 3.

Figure 6 is a detail side view of the detached single trigger mechanism.

Figure 7 is a detail plan view of a single trigger mechanism with adjustment for selective firing order, and

Figure 8 is a side view of the single trigger mechanism shown in Figure 7.

In its general organization my invention includes a trigger mechanism for multiple firing actuated by a single trigger only. This trigger mechanism is small without any bulky or large structure and will fit in place of the usual trigger mechanisms of the standard firearms without requiring the reconstruction of the stock of the firearm. The single trigger is pulled in the usual way and lifts an element above it so that said element lifts or trips one, and only one, of the usual sears of the firearm so as to release one of the firing mechanisms, leaving the other firing mechanism of the firearm cocked. Then the trigger is released in the usual manner and a connecting member becomes operative so that when the same trigger is pulled a second time in the usual manner the connecting member is lifted so as to lift the tripping element still further for tripping the second sear of the firearm. The trigger mechanism is such that no matter how hard the single trigger is pulled at the first firing it positively cannot lift the tripping element high enough to trip more than one sear, and the second sear can be tripped only after the first sear has been fired and the trigger released so as to render said connecting link operative.

In carrying out my invention I make use of any of the standard firearms, such as the double barrel shotgun **15**, in the chambers **16** of which can be placed the usual ammunition. The firing may be accomplished in any usual manner, such as by means of firing pins **17**, each of which is struck by a hammer **18**, which latter is in turn pivoted on a fixed plate **19**. The hammers **18** are cocked in

this illustration by a roller cocking cam 20 in the usual manner, and are urged by a flat main spring 21 toward striking position. Sears 22 and 23 are pivoted on the fixed plates 19 so that a hooked end 24 of each of said sears 22 and 23 engages a hook 26 at the heel of the hammer 18 and holds the hammer in cocked position. By lifting the free end of a sear its hook is released from the hammer and the latter is allowed to be turned by the action of the mainspring so as to strike the adjacent firing pin. This entire mechanism is arranged within the cavity of the stock 27 of the gun.

The mechanism heretofore described is an illustration of a usual mechanism on double barrel firearms. My invention particularly pertains to the trigger mechanism for lifting or tripping the sears 22 and 23 by a single trigger. On an underplate 28 on the bottom edge of the stock 27 is a bracket 29 which extends inwardly of the gun and is located between the sears 22 and 23. On this bracket 29 is pivoted a suitable trigger 31 which extends downwardly and out through a slot 32 through the underplate 28. The upward movement of the trigger 31 is suitably limited, for instance by the shoulder 33, shown in Figures 2 and 3, or by a cross pin 34 shown in Figure 8. As the trigger 31 is pulled in the usual manner it rocks around its pivot upwardly. On the top of the trigger 31 rests a tripping block 36. This tripping block 36 is also pivoted on the bracket 29. It is to be noted that in this illustration the trigger 31 and the tripping block 36 have a pivot common to both, or in other words both are rockable around the same fulcrum. Thus when the trigger 31 is pulled it lifts the tripping block 36 toward the usual bent ends of the sears 22 and 23.

In order to prevent the stripping of both sears 22 and 23 by the same single movement, I provide for different spacing between the respective sears and the opposed portions of the top of the block 36. The difference between the spacings is more than the normal throw or lift of the trigger 31. The difference in spacing is compensated for by an auxiliary lifting connection, but only after the first or closer sear is tripped. This is accomplished in the herein illustration by providing stepped abutment surfaces 37 and 38 respectively opposite the bent free ends of the sears 22 and 23. The higher abutment surface 37 is closer to the sear 22, than the lower abutment surface 38 is to the other sear 23. The normal lift of the trigger 31 on the block 36 is not sufficient to lift the lower abutment surface 38 beyond the cocked position of the sear 23.

A light coil spring 39 is provided between the bottom of the block 36 and the top of the trigger 31 so as to urge the same apart. This spring 39 is sufficiently strong to support and hold the block 36 in raised position, but the spring 39 is much weaker than the mainspring 21, and not sufficiently strong to lift or trip the sear 22 or 23.

The rearward edge of the tripping block 36 is formed with a notch 41. To the rear end of the trigger 31 inside the stock 27, is pivoted a pawl 42, which is urged toward the rear end of the tripping block 36 by a light coil spring 43. The inner edge of the pawl 42 is so curved that the lower corner of the tripping block 36 prevents the pawl 42 to spring toward the notch 41 when the block 36 is in depressed position. Consequently when the trigger 31 is pulled the first time, the pawl 42 remains outside of the notch 41 and the block 36 is lifted only so far as necessary to trip the first sear 22. But after the trigger 31 is released, the block 36 is retained in its slightly raised position by means of the coil spring 39. The pawl 42 is at this time urged by the coil spring 43 into engagement with the notch 41 on the tripping block 36. When the trigger 31 is pulled again it presses the pawl 42 against the notch 41 and by lifting the pawl 42 the usual stroke of the trigger movement will cause the lifting or rocking of the tripping block 36 higher than at the first firing so as to cause the lower abutment surface 38 to trip the other sear 23.

It is to be noted that when the sears are cocked the sear 22 may bear against the higher abutment surface 37 to hold down the block 36 before the first firing. A post 44 extends upwardly from the tripping block 36 for engagement by the usual slidable safety 46 thereby to prevent entirely the lifting of the tripping block 36 or the pulling of the trigger 31.

In some instances it is desirable to selectively change the firing order in a double barrel gun. This can be accomplished by providing a shiftable abutment 47 over the top surface 48 of the tripping block 49 as shown in Figures 7 and 8. The abutment 47 is a separate piece and is pivoted on a vertical pivot 51 on the top of the tripping block 49. An arm 52 extends from the pivoted end of the abutment 47 and through a slot 53 of a slide 54. The slide 54 is a flat plate slidably mounted on the side of the block 49 and has an ear 56 extended downwardly through an elongated slot 57 in the underplate 28. The stroke of the slide 54 is determined by the length of a slot 58 over the securing screw 59, and also by the length of the elongated slot 57 in the underplate 28. The arm 52 is extended at such angle from the abutment 47 that a full stroke of the slide 54 in one direction turns the abutment 47 opposite one sear, and in the other direction under the other sear, so as to leave about half of the top surface 48 of the block 49 uncovered to act as the lower abutment surface. Inasmuch as the sear opposite the higher abutment 47 is tripped first, the order of firing can be easily selected by shifting the higher abutment 47 opposite the sear of the right or the left barrel as desired for first firing. A leaf spring 61 holds the slide 54 in adjusted positions.

In other respects this trigger mechanism operates as heretofore described.

While in this illustration I described my trigger mechanism in connection with one type of shotgun, it is to be understood that my trigger mechanism may be readily used in other types of firearms irrespective of the various types of sears, or firing mechanisms. The rocking of an element to a given distance by the trigger, and after release the automatic connecting of the trigger to the rocked element by means of a pawl or the like, so that a second but similar pulling of the trigger raises or rocks the tripping element further than the first rocking movement allows positive and successive firing and positively prevents the firing of both barrels simultaneously. The individual elements may be readily adapted for use in connection with many various types of firing mechanisms.

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

1. A single trigger mechanism for a firearm having a plurality of hammers and a sear for each hammer, comprising a trigger having a pawl mounted thereon, an actuating element

movably mounted with respect to said trigger and having pawl engaging means and a plurality of vertically spaced sear engaging abutments thereon, means for moving said actuating element with respect to said trigger after actuation of said trigger for releasing one of said sears so that said pawl will engage said pawl engaging means and hold said actuating element in position to engage another sear and means for limiting movement of said trigger to prevent release of more than one sear at a time.

2. In a single trigger mechanism for a firearm having a plurality of hammers, and a sear for each hammer, comprising a trigger, an actuating element resting on the trigger and being movable with respect thereto, vertically spaced abutments on the actuating element, one of said sears engaging the higher of said vertically spaced abutments, means to limit the movement of said trigger so that only one of said sears is released upon a single actuation of the trigger, the said vertically spaced abutments adapted to successively engage the sears to release the same, said actuating element being lifted directly by the trigger so that the highest of said vertically spaced abutments releases one of said sears upon actuation of said trigger, means to move said actuating element with respect to said trigger, a pawl member attached to the rear of said trigger, the actuating element having pawl engaging means thereon, the said pawl member engaging the said pawl engaging means of the actuating element only in its lifted position to move said actuating element beyond said first lifted position when the trigger is pulled a second time, and the second of said vertically spaced abutments on the actuating element engaging the second of said sears and releasing the same when the actuating element is raised by the said pawl member when the said trigger is actuated a second time.

3. A single trigger mechanism for a firearm having a plurality of hammers and a sear for each hammer, comprising a trigger having a pawl mounted thereon, an actuating element carried by said trigger and movably mounted with respect to said trigger and having pawl engaging means and a plurality of vertically spaced sear engaging abutments thereon, means for moving said actuating element with respect to said trigger after actuation of said trigger for releasing one of said sears so that said pawl will engage said pawl engaging means and hold said actuating element in position to engage another sear and means for limiting movement of said trigger to prevent release of more than one sear at a time.

4. A single trigger mechanism for a firearm having a plurality of hammers and a sear for each hammer, comprising a trigger having a pawl mounted thereon, an actuating element movably mounted with respect to said trigger and having pawl engaging means and a plurality of vertically spaced sear engaging abutments thereon, one of the said vertically spaced abutments of the actuating element being shiftable for engagement with one or the other of said sears, and means for shifting the said interchangeable abutment, means for moving said actuating element with respect to said trigger after actuation of said trigger for releasing one of said sears so that said pawl will engage said pawl engaging means and hold said actuating element in position to engage another sear and means for limiting movement of said trigger to prevent release of more than one sear at a time.

PETER GIOVANNETTI.