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J. J. MURPHY

GUN

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2 Sheets-Sheet 2

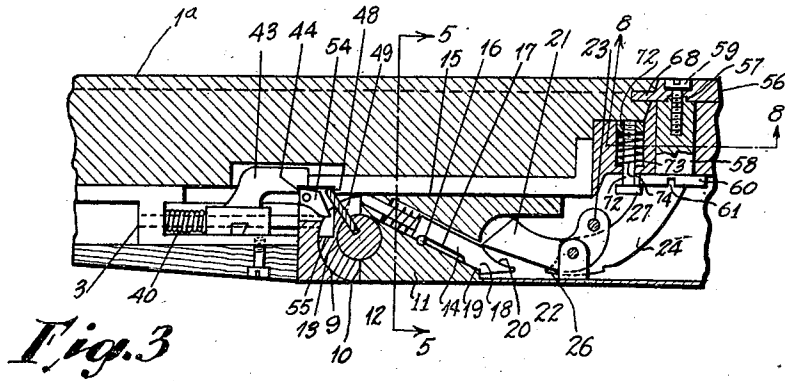


Fig. 3

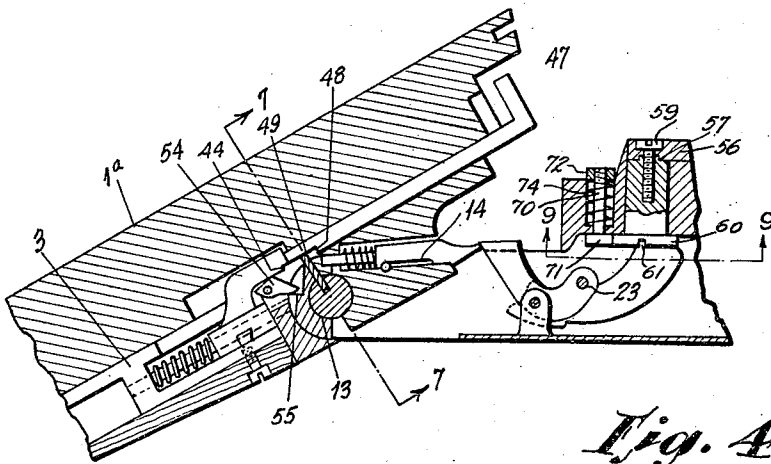


Fig. 4

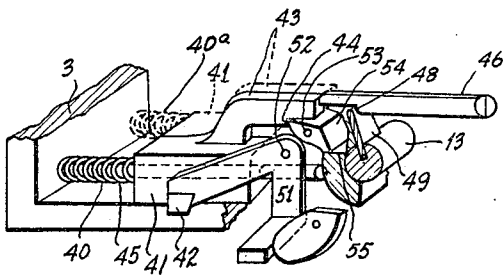


Fig. 6

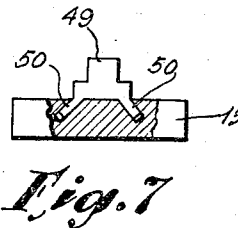


Fig. 7

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# UNITED STATES PATENT OFFICE.

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GUN.

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This invention relates to guns and more particularly to shot guns of either the single or double barrel type.

The object of the invention is to improve upon the construction of medium priced shot guns by rendering them more easily assembled and dismantled, more rugged in construction and more efficient in operation.

An important feature of the invention resides in a fore-end iron of novel construction and housing ejector mechanism adapted to be concealed by the fore-end wooden part which in accordance with this invention is secured to the fore-end iron by means of a convenient screw or screws which firmly secures the wood to the fore-end iron in such manner as to preclude the inadvertent displacement of the wooden part.

Another feature of the invention is inherent in improved cocking bolt and lever construction, so constituted as to more efficiently operate the T-bar and to furthermore permit the gun to be fired and shells extracted should the fore-end be lost or removed from the gun.

Of particular importance, however, is the utilization of an extension of the main spring follower or followers for the purpose of operating a cam or cams in such manner that when the gun is fired ejector mechanism will be so conditioned that upon a subsequent "breaking" of the gun, the shells will be forcibly ejected and thrown free from the breeches of the barrels.

As stated, the ejector mechanism is housed within the fore-end iron, and, in practice, is preferably held in retracted energized condition by means of a sear or sears, which when the gun is fired, are operated upon by the extension of the follower to release the ejector mechanism for operation, but in accordance with this invention, said mechanism is further held in restraint until the gun is broken and the barrel or barrels tilted into a predetermined angular relation with the action frame, whereupon the ejector mechanism is fully released and throws the shells free from the breech.

The gun of this invention, moreover, embodies the usual extractor horn. The horn is of novel construction and is mounted in a novel and efficient manner.

The present invention also embodies important improvements in the mounting of the top lever and top lever barrel, these improvements being more particularly directed to economy in manufacture and assembly, whereby these parts may be more expeditiously and conveniently mounted and are not so apt to get out of order.

Features of the invention, other than those specified, will be apparent from the herein after detailed description and claims, when read in conjunction with the accompanying drawings.

The accompanying drawings illustrate one practical embodiment of the invention, but the construction therein shown is to be understood as illustrative only, and not as defining the limits of the invention.

Figure 1 illustrates a gun embodying the present invention, certain parts of the gun being shown in longitudinal vertical section and the stock being omitted. In this figure, the hammers or strikers are shown as cocked.

Figure 2 is a similar view of a portion of the construction shown in Figure 1, but showing the parts in the positions which they occupy after the triggers have been pulled.

Figure 3 is a vertical section through substantially the longitudinal medial line of the gun with the parts in the positions which they occupy in Figure 2.

Figure 4 is a view similar to Figure 3, but showing the gun broken or open.

Figure 5 is a section on the line 5—5 of Figure 3.

Figure 6 is a diagrammatic perspective view illustrating more particularly the ejector and extractor mechanism and cooperating parts.

Figure 7 is a section on the line 7—7 of Figure 4 and illustrating the manner of mounting the horn on the action frame.

Figure 8 is a section on the line 8—8 of Figure 3.

Figure 9 is a section on the line 9—9 of Figure 4.

It will of course be understood that the present invention may be associated with both single and double barrel shot guns of either the hammer or hammerless type, but, for the purpose of illustration, I have chosen to show the invention as incorporated in a double barrel hammerless gun.

In the accompanying drawings, the barrels

are designated 1 and 1<sup>a</sup>, the action frame 2, the fore-end iron 3, and the triggers 4 and 4<sup>a</sup>. These triggers operate the sears 5 which control the hammers or strikers and with the sears is associated safety lock mechanism embodying the usual safety bar 6 and locking bolt 7 operated from a safety slide 8.

The action frame is provided with a rounded forward end as shown at 9 and back of this end a short distance is formed with an opening 10 adapted to receive a lug 11 which is rigid with the barrels 1 and 1<sup>a</sup> and is shaped to be received within the opening. The forward end of this lug is provided with a transverse semicylindrical recess 12 and this recess bears against a pin 13 which extends transversely through the frame and serves as a bearing about which the lug rotates when the gun is broken or opened.

Mounted to vertically reciprocate within the slug 11 is a cocking bolt 14 forwardly of which is a helical spring 15 which normally impels the cocking bolt in a rearward direction, the movement of the bolt in this direction being limited by a pin 16, which also precludes the rotation of the bolt by virtue of the flat side 17 on the latter. This bolt is furthermore provided with a recess 18 adapted to cooperate with a lip 19 formed in the opening in which the bolt operates and by the cooperation of the recess and lip, the bolt is normally locked against longitudinal movement until, through slight manipulation permitted by lost motion of the bolt, the recess 18 may be disengaged from the lip 19 to permit the lug to be removed from the opening 10 in the action frame when it is desired to dismantle these parts.

The rear end of the cocking bolt is curved as shown at 20 to constitute a cam surface adapted to cooperate with a cocking lever 21 pivoted at 22 and having associated therewith a T bar 23. This T bar extends transversely of the action frame and overlies both hammers 24. The hammers are also pivoted at 22 and each is provided with a rest 26 at its forward end and at its back side with a notch 27.

Bearing against the rest 26 of each hammer is a follower 28 against which a main spring 29 bears. These main springs are housed within the action frame and are of helical type and each follower has a forward extension 30 which passes through the corresponding main spring and extends the entire distance to the forward end of the action frame as shown best in Figures 1 and 2.

Adjacent the forward end of each extension is formed a recess 31 and into this recess projects a portion of the cam 32 pivoted at 33. The purpose of this connection will be hereinafter more fully explained, but it will be noted that when the extension is moved forwardly the cam will be moved in a counterclockwise direction to permit retraction

of a stud 34 associated with each cam whereas, when the extension is moved in a rearward direction, the cam will be rotated in a clockwise direction to force the stud 34 forwardly. The stud 34 is carried by the fore-end iron to be presently described in conjunction with the ejector mechanism.

It will of course be understood that there is a main spring for each hammer and that the parts associated therewith are duplicated at both sides of the gun in a double barrel shot gun.

By mounting the main spring in the manner described, it will obviously tend to normally force its associated hammer into engagement with the firing pin 35. When the hammers are in retracted cocked position, however, they are locked in place by the sears 5, the forward ends of which engage with the notches 27.

The cocking is effected by the operation of opening or breaking the gun, since, when the gun is broken, the cocking bolt 14 will be bodily swung about the axis of the pin 13 and in so doing will engage with the under side of the cocking lever 21 and rotate the cocking lever in a clockwise direction as viewed in Figure 3. This will cause the T-bar 23 to be pressed downwardly against both hammers 24 simultaneously and the hammers will be thus rotated in a clockwise direction about their pivots 22 until the sears 5 which are spring pressed, engage with the notches 27. The cocking of the hammers, moreover, retracts the followers 28 and places the main springs under tension, at the same time forcing the follower extensions 30 forwardly to permit retraction of the studs 34.

After the gun is thereafter closed and the triggers subsequently pulled, the sears 5 are released and the main springs force the firing pins into engagement with percussion caps of the shells, but as the main springs operate the follower extensions 30 move rearwardly, rotate the cams 32 and drive the studs 34 forwardly. This forward movement of the studs 34 under the impulse of the main springs is utilized in accordance with the present invention to effect a partial release of ejector mechanism adapted to completely eject the shells from the barrels when the gun is next broken.

It will be noted, however, that only fired shells will be ejected since unless the trigger has been pulled to fire the shell the corresponding slide 41 will remain locked by the associated bell crank 51 as will hereinafter be more clearly apparent.

The major portion of the ejector mechanism is housed within the fore-end iron 3, which, as shown in the drawings, is of a skeletonized construction and in substantially the form of a bridge which is removably held to the barrels and action frame by a Baker spring 36 in a manner common to this

art. I wish to call particular attention, however, to the fact that in accordance with this invention, shell ejecting mechanism is mounted within and carried by this fore-end iron and the fore-end wood 37 is secured to the fore-end iron in a novel and efficient manner. As shown in Figure 1 of the drawings, the forward end of the wooden part 37 is secured to the fore-end iron 3 by means of a screw 38. This manner of securing the wood to the iron has been hitherto practiced, but the rear portion of the wooden part 37 has not been properly anchored heretofore to the part 3. By the present construction, I am enabled to anchor the rear end of the wooden part 37 to the bridge 3 by a screw 39 which renders the construction much more rugged than heretofore and makes the wood less liable to displacement if the gun is inadvertently struck against some immovable object.

As stated, the fore-end iron 3 is skeletonized and within the skeletonized part thereof is supported the ejector mechanism to which I have referred. This ejector mechanism will now be described in detail.

Rigidly mounted on the part 3 are two barrel rods 40 and 40<sup>a</sup> which respectively correspond to barrels 1 and 1<sup>a</sup>, and associated with each of these rods is mechanism for ejecting the shell from its corresponding barrel. Inasmuch as these parts are duplicated for the two barrels, a description of one will suffice for both and for a clearer understanding of the parts, attention is particularly directed to Figure 6. It will be noted from this figure that the rods extend in parallel relation longitudinally of the gun below the barrels and on each rod is mounted a slide block 41. Each slide block 41 is provided with a laterally extending lug 42 and an upwardly and rearwardly extending finger 43. The finger 43 is undercut to form a shoulder 44 at its rear end.

A helical spring 45 is coiled about each of the rods 40 and 40<sup>a</sup> between the rigid portion of the fore-end iron 3 and the slide rod, and these springs serve to normally force the slide blocks in a rearward direction. The free ends of the upwardly and rearwardly extending fingers 43 are alined with a circular rod 46 mounted between the gun barrels for longitudinal sliding movement and this rod 46 is longitudinally slit in a vertical plane so that one lateral half of the rod will rest against the rear end of each of the fingers 43. The rear ends of these rod sections carry arcuate ejector sections 47, one of which is associated with the breech of each barrel and is so disposed as to come flush with the end of the barrel when the gun is closed. As a result the rim of a shell introduced into the breech will bear for a portion of its circumference against the ejector sections 47, so that if these sections are moved rearwardly the shells will be withdrawn from the breech,

and if the operation is rapid enough the momentum of the shell will snap it free from the gun.

Extraction of the shell without ejection is provided by undercutting both sections of the rod 46 to form shoulders 48 which are adapted to cooperate with a horn 49 illustrated in detail in Figure 7. This horn is made of a flat piece of metal provided at its base with projecting legs 50 normally parallel to one another. When mounting the horn, however, a slot is formed in the forward end of the action frame, this slot being of sufficient depth to extend to the surface of the pin 13, as shown in Figure 3, and then the pin is drilled with diverging holes. Thereafter the horn is introduced into the slot with the feet 50 registering with the diverging holes and the horn is thereupon driven in the direction of the pin to force the feet into the holes and to thereby bend the feet into diverging relation as shown in Figure 7, whereby the horn is rigidly mounted on the pin in a manner to preclude inadvertent displacement of the horn and to simultaneously lock the pin against removal. This construction is desirable and highly practical since it will be noted from Figure 1 that the extensions 30 of the follower extend through the pin 13 and if the pin were permitted to turn it would cause binding which would preclude operation of the parts.

By reference to Figures 3 and 4, it will be noted that the horn extends into the path of the shoulder 48 which provides for the extraction of the shell in a manner hereinafter to be described.

Mounted in the rear portion of the fore-end iron 3 are two trips which may be referred to as primary trips. These two trips are in the form of bell cranks and are designated 51. They are pivoted on the pin 52 at their elbows and one end of each bell crank is adapted to operate as a sear with respect to the projection 42 of a corresponding slide while the other arm carries the stud or projection 34 to which reference has already been made. Also mounted on the fore-end iron on a pivot 53 is a pawl 54, this structure being duplicated for each ejector finger 43. The nose of each pawl 54 is adapted to cooperate with the stop 44 of one ejector finger 43, while the heel of each pawl is adapted to cooperate with a shoulder 55 formed at the forward end of the action frame, see Figures 3 and 4.

If it be assumed that both main springs are energized and that the hammers are cocked and held by the sears 5, the operation of the parts incident to firing of the gun and subsequent ejection and recocking may be described as follows.

Upon operation of the triggers, the sears are tripped to release the hammers in succession and these hammers act upon the firing

pins to explode the shells. Simultaneous with the operation of the hammers, the extensions 30 (see Figure 1) move rearwardly and swing the cams 32 against the studs 34. If pressure is applied to the studs, the bell cranks 51 are tripped (see Figure 2) to disengage the lugs 42 of the slide blocks 41 which form part of the ejector mechanism. The sides 41 immediately move rearwardly a short distance to bring the shoulders 44 of the ejector fingers 43 into engagement with the pawls 54 (see Fig. 3).

The top lever designated 56 is now swung laterally in the usual manner to unlock the barrels for pivotal movement with respect to the action frame and the gun is broken. As the barrels pivotally move on the pivot pin 13, the horn 49 (see Figure 3) engages with the shoulders 48 of the ejector rod sections and these sections are slowly moved rearwardly until the gun is about half way open by which time the shells will have been extracted a distance sufficiently to permit them to be grasped and withdrawn by the fingers of the hand. If it is desired to forcibly eject the shells, pivotal movement of the barrels, i. e., a further opening of the gun, will effect this result. In other words, continued pivotal movement of the barrels will cause the pawls 54 to engage with the shoulder 55 (see Fig. 4) and the pawls will be tripped, so as to disengage the nose of both pawls from the shoulders 44 of the ejector fingers. As soon as the ejector fingers are thus released, the springs 40 and 48 act instantaneously to drive the ejector rod sections rearwardly with considerable force and to thereby forcibly eject the shells and throw them free from the gun.

During the foregoing operation of breaking the gun, the cocking bolt has been engaged with the cocking lever 21 and which, in a manner hereinbefore described, functions to recock the hammers and cause them to be locked by the sears 5. The recocking of the hammers is accompanied by re-energizing of the main springs 29 (Fig. 1) with the result that the cams 32 are returned to the position of Figure 1 wherein they are withdrawn sufficiently to permit re-engagement of the bell crank levers 51 with the lugs 42 of the ejector slide blocks as soon as the blocks are retracted and the springs 40 re-tensioned. These springs are re-tensioned during the closing of the gun, since the ejector sections 47 engage with the action frame and are forced forwardly whereby they force the ejector fingers 43 in a forward direction and compress the springs 40 and 40<sup>a</sup> to a sufficient extent to permit the bell cranks 51 to re-engage with the lugs 42. In practice, springs are preferably associated with these bell cranks to insure their return to normal position.

It will be apparent from the descriptions thus far advanced that the mechanism em-

ployed in accordance with this invention is unusually simple in construction and positive in its operation. The use of leaf springs which are apt to break is almost entirely avoided and the parts are made sufficiently rugged to withstand hard usage through long periods. The ejector mechanism is of particular importance since the construction which I have described is such that it can be practically incorporated in medium priced guns whereas heretofore only the most high priced sporting pieces have been equipped with the more elaborate ejector mechanisms known to the art.

Furthermore, the gun of this invention may be readily dismantled as the lug 11 can be easily removed from the opening 10 of the action frame by manipulating the cocking bolt to disengage it from the lip 19. This lip, however, will normally preclude disengagement of the parts and preclude inadvertent release of the barrels from the action frame.

The gun thus far described may be equipped with any suitable top lever or top lever barrel serving the usual purpose of locking the gun in closed position. Under prior practice, however, the assembly of the top lever and its barrel has constituted considerable annoyance because of the skill required in the making of the assembly and I have accordingly incorporated into this gun a highly novel form of top lever barrel construction which overcomes the disadvantages to which I have referred. This construction will now be described in detail.

The top lever 56 has a transverse slot 57 in its under side and it is secured to the top lever barrel 58 by means of a screw 59, said barrel having a polygonal projection which extends into the slot 57 so as to lock the top lever against relative rotation to the barrel. The barrel is provided at its bottom with a head 60 having a transverse slot 61. The sides of the barrel are provided with two shoulders 62 and 63, the former of which cooperates with the push rod 64 which extends rearwardly to control the safety catch of the gun. With the other shoulder 63 is associated a spring pressed follower 65 against which operates the spring 66. The action frame is drilled as shown at 67 and the spring follower is introduced into the passage thus produced in such manner that the spring and follower will act against the shoulder 63 (see Fig. 8) to normally impel the top lever into a position wherein its forward end 68 will interlock with a transverse slot in the rear tang of the gun barrels.

This arrangement greatly facilitates the assembly of the parts. The spring 66 and follower 65 are first introduced into the passage 67 and thereafter the barrel is introduced into its bearing in the action frame from the under side thereof. A suitable tool, such as

an angle screw driver, is then engaged with the slot 61 of the barrel and the barrel is rotated until it is in the desired position whereupon the top lever is brought into a position wherein its transverse slot interfits with the barrel and the screw 59 is then introduced and tightened to bind the parts together with the spring 66 under tension and in a condition to normally force the top lever into locking position.

The head 60 of the top lever barrel is provided with a cut out 69 with which the top lever latch is adapted to cooperate. This latch is in the form of a bolt 70 having a head 71. The bolt extends upwardly through the action frame and is provided with a nut 72 operating in a recess 73 and positioned in the recess below the nut is a spring 74 which normally tends to elevate the bolt 70 into the path of the rear tang of the barrels. When the gun is closed and the top lever in locking position, the head 60 of the top lever barrel 58 will overlies the head 71 of the latch, but when the top lever is swung to one side to unlock the tang of the barrels the cut out 69 (Fig. 9) will register with the head 71 of the latch, so that when the gun is broken the spring 74 will lift the bolt 70 and its head 71 will enter the cut out 69 and will serve to lock the top lever in unlocking position until the gun is again closed, during which operation the rear tang of the barrels will force the bolt 70 downwardly to release the barrel and permit the top lever to re-lock the gun in closed position. This is a very simple and economical construction, containing no parts apt to get out of order and insuring complete efficiency at all times. Moreover, the parts may be readily assembled without the exercise of mechanical skill on the part of the workmen.

The foregoing detailed description sets forth the invention in its preferred practical form, but the invention is to be understood as fully commensurate with the appended claims.

Having thus fully described the invention, what I claim as new and desire to secure by Letters Patent is:

1. In a gun, an action frame, a gun barrel mounted for pivotal movement on the action frame, and a fore-end iron carried by the barrel, in combination with a spring actuated ejector member mounted on the fore-end iron, a primary detent forming a primary lock to hold the ejector member normally in restraint, a secondary detent to hold the ejector member in restraint after it has been released by the primary detent, an ejector element operable by the ejector member and forming a part of the breech of the gun, a hammer, a coil main spring for operating the hammer, a rod extending through and beyond the main spring and constituting a follower therefor, a cam operable by said rod to trip the primary de-

tent when the hammer is released to fire the gun, and means to trip the secondary detent when the gun is broken to thereby fully release the ejector member whereby the ejector element is operated to eject the shell.

2. In a gun, an action frame, a gun barrel mounted for pivotal movement on the action frame, and a fore-end iron carried by the barrel, in combination with a spring actuated ejector member mounted on the fore-end iron, a primary detent forming a primary lock to hold the ejector member normally in restraint, a secondary detent to hold the ejector member in restraint after it has been released by the primary detent, an ejector element operable by the ejector member and forming a part of the breech of the gun, a hammer, a coil main spring for operating the hammer, a rod extending through and beyond the main spring, a cam operable by said rod to trip the primary detent when the hammer is released to fire the gun, means to trip the secondary detent when the gun is broken to thereby fully release the ejector member whereby the ejector element is operated to eject the shell, and a horn rigidly carried by the action frame and operable upon the ejecting element independently of the ejector member to permit extraction of the shell from the barrel when the gun is broken.

3. In a gun, an action frame, a gun barrel mounted for pivotal movement on the action frame, and a fore-end iron carried by the barrel, in combination with a spring actuated ejector member mounted on the fore-end iron, a primary detent forming a primary lock to hold the ejector member normally in restraint, a secondary detent to hold the ejector member in restraint after it has been released by the primary detent, an ejector element operable by the ejector member and forming a part of the breech of the gun, a hammer, a coil main spring for operating the hammer, a rod extending through and beyond the main spring, a cam operable by said rod to trip the primary detent when the hammer is released to fire the gun, means to trip the secondary detent when the gun is broken to thereby fully release the ejector member whereby the ejector element is operated to eject the shell, and a horn carried by the action frame and operable upon the ejecting element independently of the ejector member to permit extraction of the shell from the barrel when the gun is broken, said horn being rigidly anchored in the pivot pin of the barrel and serving to lock said pin against movement.

4. In a gun, an action frame provided with a pivot pin, and a barrel mounted for pivotal movement on the pin, in combination with an extractor element mounted longitudinally of the barrel and a portion of which constitutes a portion of the breech of the barrel, and a horn rigidly anchored in the pivot pin of the

action frame and projecting into a position to engage with the extractor element when the gun is opened to extract a shell from the barrel a sufficient distance to permit of its easy manual removal.

5 In a gun, an action frame, a pair of barrels pivotally mounted on the action frame, a firing pin on the frame in axial relation to each barrel, a hammer mounted on the  
10 frame for cooperation with each firing pin, a main spring normally impelling each hammer into engagement with its firing pin, a sear for retaining each hammer in cocked position with the associated main spring under  
15 tension, triggers for releasing the sears to permit operation of the hammers selectively, a cocking lever having a T-bar adapted to simultaneous engagement with both hammers, and a cocking bolt carried by the barrels and movable therewith, when the gun  
20 is broken, to force the T-bar simultaneously into engagement with both hammers for the purpose of forcing the hammers into cocked position, and a shoulder on the cocking bolt normally engaging with the shoulder on the  
25 barrels for maintaining the cocking bolt against inadvertent forward longitudinal movement.

30 6. In a gun, the combination of an action frame, a gun barrel mounted for pivotal movement on the action frame and having a rearwardly extending slotted tang, a top lever barrel mounted for rotary movement in the action frame and provided with peripheral  
35 abutments, a safety push rod operable by one abutment, a spring actuated follower bearing against the other abutment, a top lever secured to the barrel and adapted to be impelled into locking position by the spring  
40 actuated follower, said top lever having a locking projection adapted for cooperation with a slot in the tang of the gun barrel to lock the gun in closed position, a plunger carried by the action frame, a spring for normally  
45 impelling the plunger into the path of the tang of the gun barrel, said plunger and the top lever barrel being provided with cooperating parts adapted to interfit and maintain the top lever in unlocked position while  
50 the plunger is in the path of said tang, the tang being adapted when the gun is closed to engage with the plunger and retract it to disengage the top lever barrel and permit the top lever to move into a position to lock the  
55 gun closed.

7. In a gun, the combination of an action frame, a gun barrel pivoted to the action frame and provided with a rearwardly extending slotted tang, a top lever barrel mounted  
60 for rotation in the action frame and provided with peripheral abutments and having a head, a top lever secured to the top lever barrel and having a locking projection to engage with the slot in the tang, a follower bearing  
65 against one abutment of the top lever barrel,

a helical spring actuating said follower to normally impel the barrel into a position wherein the projection on the top lever will engage with the tang of the gun barrel, a safety locking bar cooperating with another projection of the top lever barrel, a plunger supported in the action frame adjacent the top lever barrel and provided with a head adapted to underlie the head of the top lever barrel when the gun is closed, a helical spring  
70 for normally impelling the plunger into the path of the tang, the head of the top lever barrel being provided with a cut away portion adapted to register with the head of the plunger when the top lever is moved into gun  
75 unlocking position to permit the plunger to shift into a position wherein it will project into the path of the tang and simultaneously enter the cut out portion of the top lever barrel head when the gun is broken for the  
80 purpose of locking the top lever in a position to permit closing of the gun.

8. In a gun, the combination of an action frame provided with a tang seat, a gun barrel mounted for pivotal movement on the  
85 action frame and having a slotted tang engaging with the seat when the gun is closed, a top lever barrel rotatable in the action frame, a top lever secured to the top lever barrel and having a locking projection to engage with the slot in the tang, a helical  
90 spring for normally impelling the top lever barrel into locking position, the plunger extending downwardly from the tang seat and mounted for longitudinal reciprocation, a  
95 helical spring coiled around the plunger and normally tending to force it in the direction of the tang, and cooperating parts on the plunger and on the top lever barrel to lock the plunger in retracted position while the  
100 top lever is in locking position and to lock the top lever in unlocked position when the plunger is unretracted and the gun broken, a fore-end iron carried by the barrel, a spring actuated ejector member mounted on the  
105 fore-end iron, a primary detent forming a primary lock to hold the ejector member normally in restraint, a secondary detent to hold the ejector member in restraint after it has been released by the primary detent, an ejector  
110 element operable by the ejector member and forming a part of the breech of the gun, a hammer, a main spring for operating the hammer, a main spring follower, a cam operable by the main spring follower to release the primary trip when the hammer is  
115 operated, means to trip the secondary detent when the gun is broken to thereby fully release the ejector member and permit of the ejection of the previously fired shell, and  
120 a horn carried by the action frame and operable upon the ejecting element independently of the ejector member to permit extraction of the shell from the barrel when the gun is broken.

9. In a gun, an action frame provided with a pivot pin extending therethrough and having spaced apart diverging holes in the pin, and a barrel mounted for pivotal movement  
5 on the pin, in combination with an extractor element mounted longitudinally of the barrel and a portion of which constitutes a portion of the breech of the barrel, and a  
10 horn provided with projecting fingers, said horn projecting through a slot in the action frame with the fingers forced into the diverging holes in the pin to rigidly mount the  
15 horn on the action frame and simultaneously lock the pin in position, said horn projecting beyond the action frame and into a position to engage with the extractor element when the gun is opened to extract a shell from the barrel a sufficient distance to permit it to be manually removed.

20 10. In a gun, an action frame, a gun barrel mounted for pivotal movement on the action frame, and a fore-end iron carried by the barrel, in combination with a spring actuated ejector member mounted for sliding

movement on the fore-end iron and normally  
25 spring impelled in the direction of the breech of the gun, a bell crank pivoted on the fore-end iron and one arm of which is adapted to normally engage the ejector member to restrain the same with the spring under tension, a detent also pivoted on the fore-end  
30 iron and normally forming an additional lock for the ejector member, a cam mounted on the action frame and projecting into a position to engage with and operate the bell  
35 crank to release the same from the ejector member when the cam is operated, a rod for operating said cam, a hammer also operated by the rod, a sear for normally holding the hammer in cocked position, a main spring  
40 for operating the rod to actuate the hammer and the cam when the sear is released, and an abutment on the action frame to operate the detent when the gun is broken.

In testimony whereof I have signed the  
45 foregoing specification.

JOHN J. MURPHY.