

Aug. 2, 1938.

E. F. JACOBSON

2,125,571

GUN

Filed Jan. 10, 1935

4 Sheets-Sheet 1

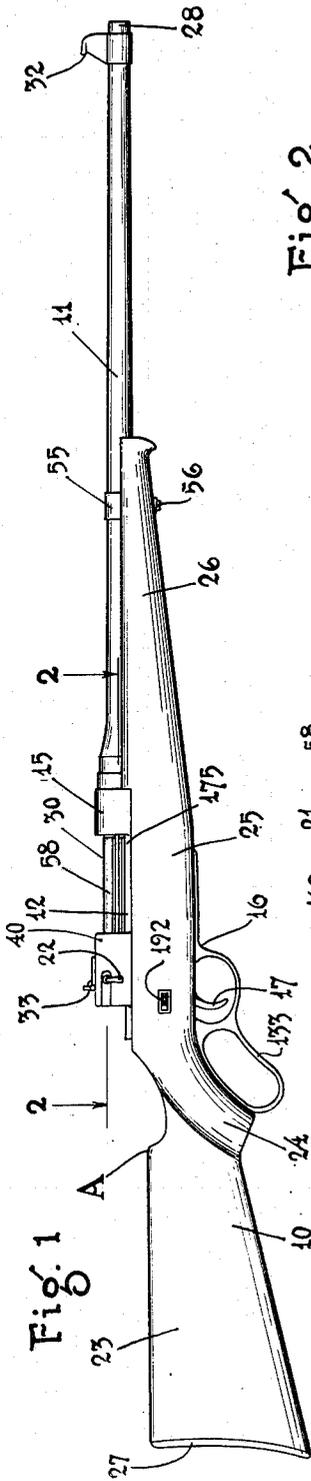


Fig. 1

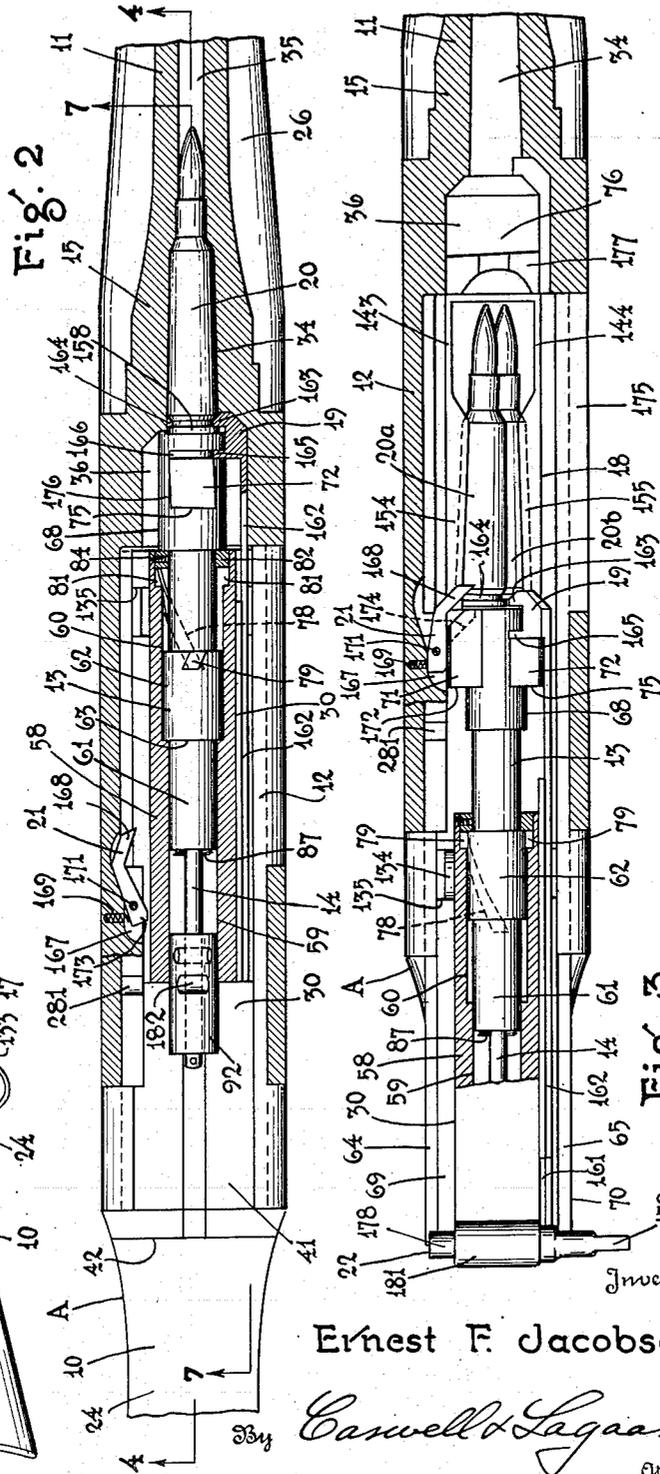


Fig. 2

Fig. 3

Ernest F. Jacobson

Carwell & Lagaard

Attorneys

Aug. 2, 1938.

E. F. JACOBSON

2,125,571

GUN

Filed Jan. 10, 1935

4 Sheets—Sheet 2

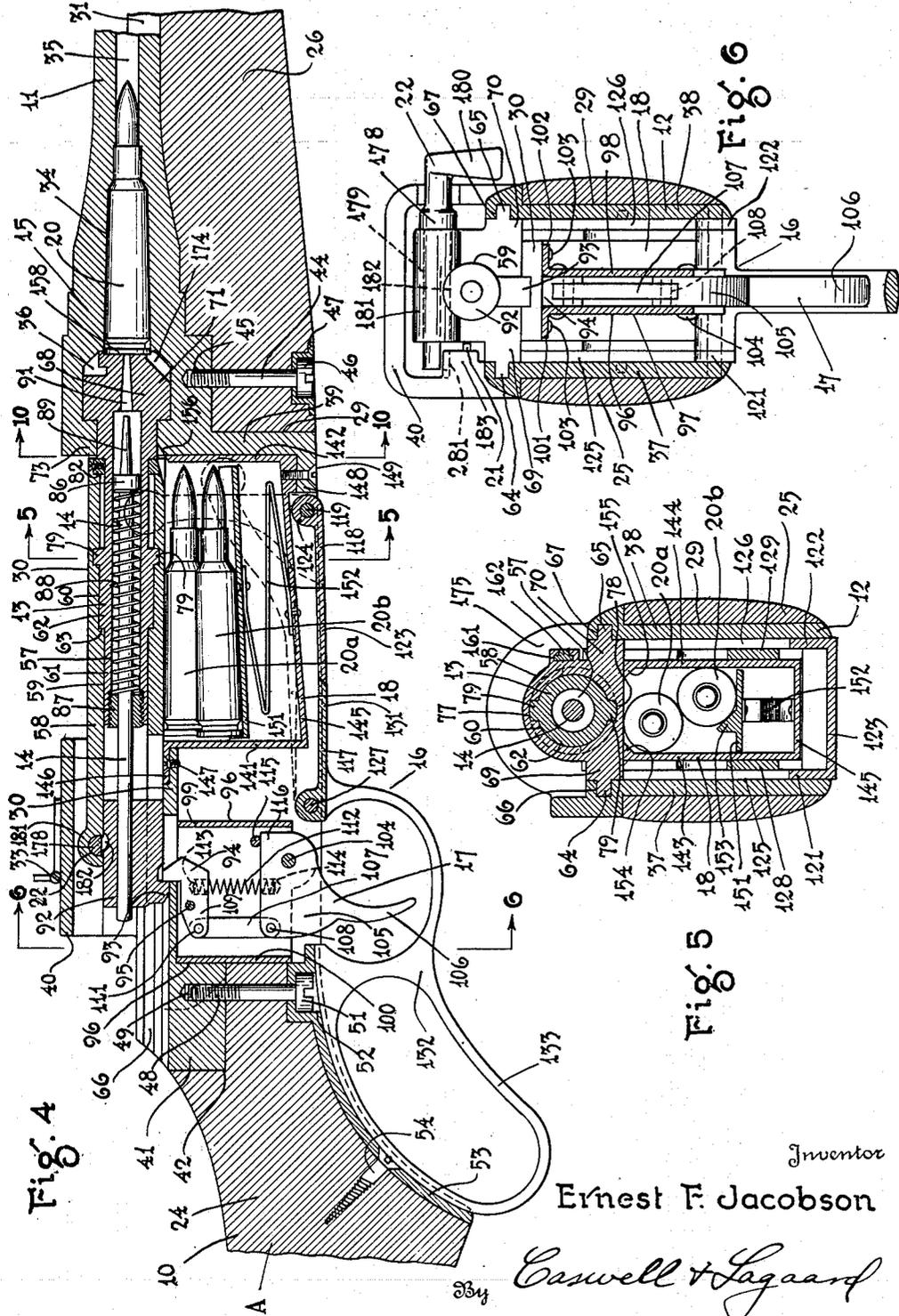


Fig. 4

Fig. 5

Fig. 6

Inventor
Ernest F. Jacobson

Caswell & Lagaard
Attorneys

Aug. 2, 1938.

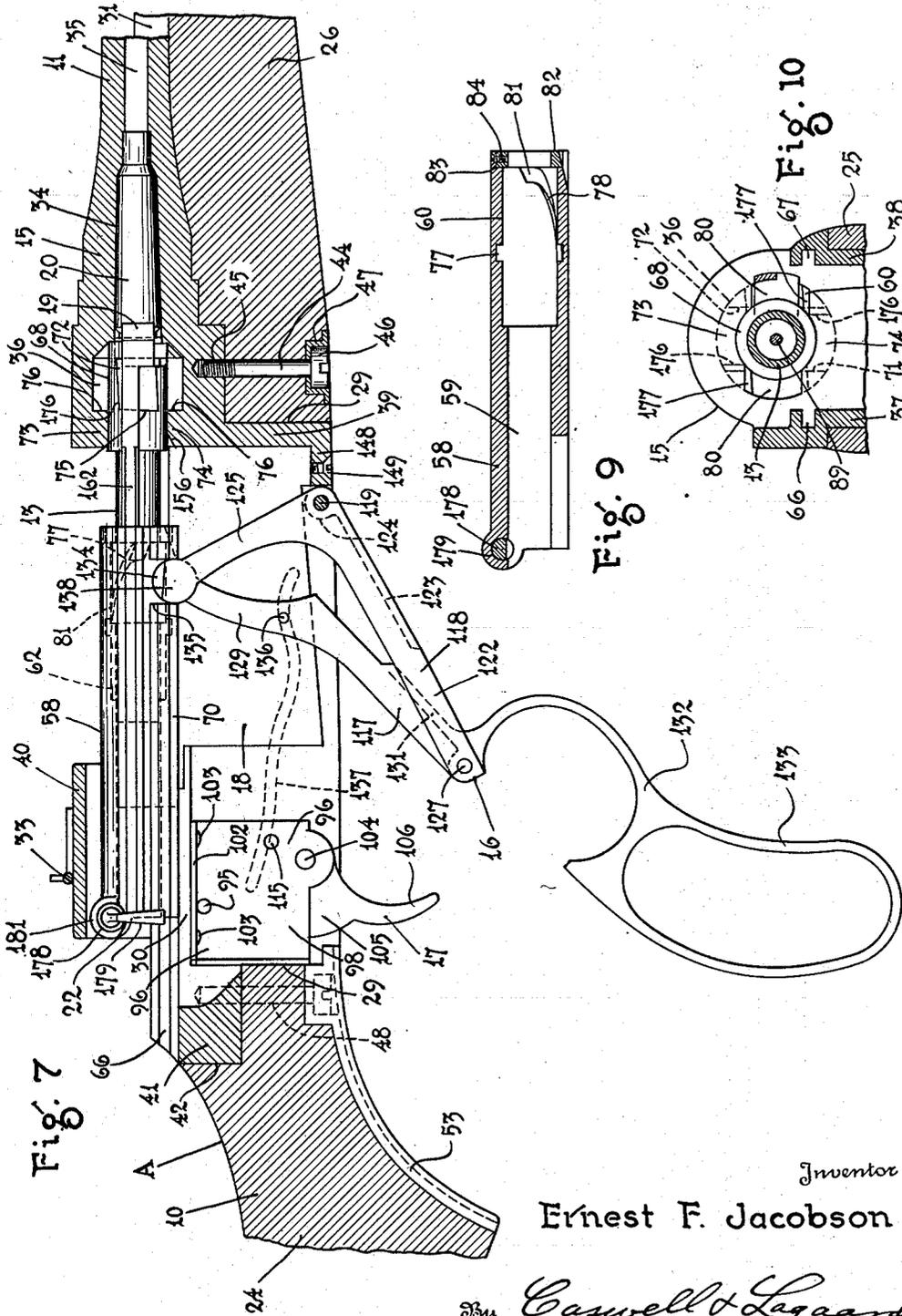
E. F. JACOBSON

2,125,571

GUN

Filed Jan. 10, 1935

4 Sheets-Sheet 3



Inventor

Ernest F. Jacobson

By Caswell & Lagaard Attorneys

Aug. 2, 1938.

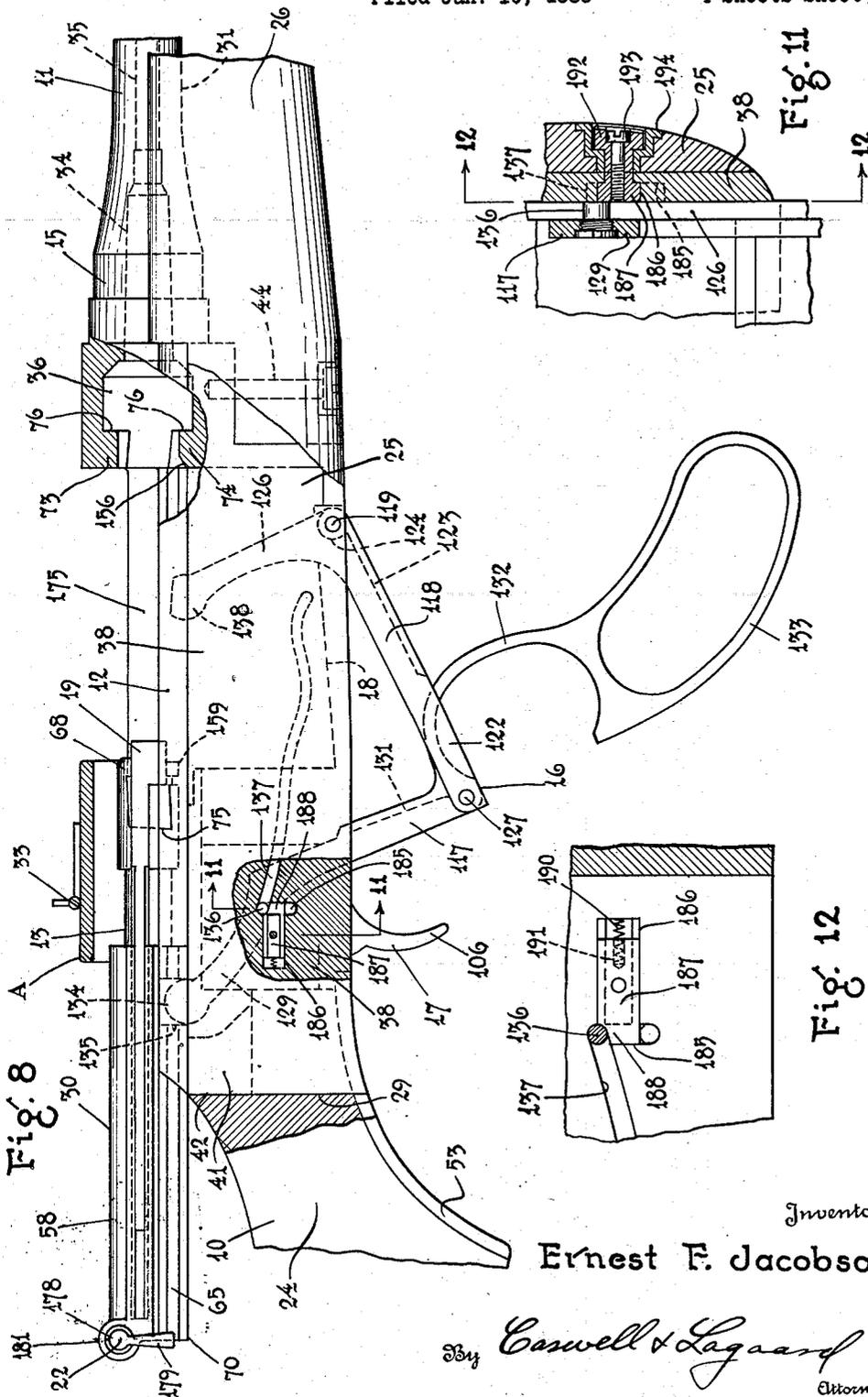
E. F. JACOBSON

2,125,571

GUN

Filed Jan. 10, 1935

4 Sheets-Sheet 4



Inventor
Ernest F. Jacobson

By *Carroll & Lazard*
Attorneys

UNITED STATES PATENT OFFICE

2,125,571

GUN

Ernest F. Jacobson, Minneapolis, Minn.

Application January 10, 1935, Serial No. 1,095

15 Claims. (Cl. 42—16)

My invention relates to rifles and particularly to rifles having a sliding bolt for moving the cartridge into the receiving chamber.

An object of the invention resides in providing a lever action for operating the bolt.

A still further object of the invention resides in providing a compound lever action in which the leverage on the bolt is greatest during unlocking and locking and in which greater movement and less force is procured after the bolt has been unlocked to move the cartridge into and out of the cartridge chamber.

An object of the invention resides in constructing the lever action with two levers, one of said levers having a greater leverage than the other and operating upon the bolt during the locking and unlocking thereof.

A feature of the invention resides in pivoting one of said levers to the frame of the rifle and in pivoting the other lever to said first named lever.

An object of the invention resides in providing said levers with engaging heads for engaging the bolt housing, the head of one lever becoming disengaged from the bolt housing upon engagement of the other lever head therewith.

A feature of the invention resides in providing guides for guiding the movement of said levers to cause the same to engage and disengage the bolt housing at the proper times.

Other objects of the invention reside in the novel combination and arrangement of parts and in the details of construction hereinafter illustrated and/or described.

In the drawings:

Fig. 1 is an elevational view of a rifle illustrating an embodiment of my invention applied thereto.

Fig. 2 is a fragmentary plan sectional view taken on line 2—2 of Fig. 1.

Fig. 3 is a view similar to Fig. 2 showing the parts in altered position.

Fig. 4 is an elevational sectional view taken on line 4—4 of Fig. 2.

Fig. 5 is a cross sectional view taken on line 5—5 of Fig. 4.

Fig. 6 is a cross sectional view taken on line 6—6 of Fig. 4.

Fig. 7 is an elevational sectional view taken on line 7—7 of Fig. 2 and showing the bolt unlocked.

Fig. 8 is a view similar to Fig. 7 showing the bolt fully retracted.

Fig. 9 is an elevational sectional view of the bolt housing detached from the rifle.

Fig. 10 is a cross sectional detail view taken on line 10—10 of Fig. 4.

Fig. 11 is an elevational sectional detail view taken on line 11—11 of Fig. 8.

Fig. 12 is an elevational sectional view taken on line 12—12 of Fig. 11.

Through years of constant usage the bolt type gun has found desired favor, particularly with high powered cartridges due to the sturdy construction of the same and due to the ability of such type of gun to resist the shock occasioned through discharge of the gun. The bolt type of gun, however, has one disadvantage and that is that it is slow and awkward to manipulate. The present invention seeks to overcome this difficulty by providing a lever action which may be used in conjunction with the bolt for operating the bolt, said lever action functioning in the customary manner and moving the bolt both during locking movement and movement away from the receiver.

For the purpose of illustrating my invention, I have shown in Fig. 1 a rifle which is indicated in its entirety by the reference character A. This rifle comprises a stock 10 which carries a barrel 11. The barrel 11 has attached to it at the receiver end a frame 12 in which is slidably mounted a bolt mechanism 30 which includes a bolt 13. Through the action of a firing pin 14 a cartridge 20 disposed in the receiver 15 of the barrel 11 is fired. The bolt mechanism 30 is operated through a compound lever action 16 which constitutes a principal feature of the invention. The firing pin 14 is released through a trigger 17 whereby the said firing pin is caused to engage the percussion cap of the cartridge and to discharge the same. A magazine 18 holds a number of cartridges and serves to feed the cartridges into position to be delivered to the receiver 15. In conjunction with the bolt 13 an extractor 19 is provided by means of which cartridges are removed from the receiver. Operating in conjunction with the bolt 13 is an ejector 21 which ejects the cartridges from the rifle after the cartridges have been fired and extracted from the receiver. A safety 22 holds the firing pin in cocked position preventing accidental discharge of the rifle. These various parts will now be described in detail.

The stock 10 is best shown in Fig. 1 and is constructed of wood such as walnut or any other suitable kind of wood. This stock comprises a butt 23 which is connected to a grip 24. The forestock 25 extends forwardly of the grip 24 and terminates in the forearm 26. At the end of the butt 23 is a butt plate 27 which serves as a protection for the end of the stock.

The barrel 11 may be constructed cylindrical in form gradually tapering toward the muzzle 28 thereof. At the opposite end of the barrel is formed the receiver 15 which is integral with the frame 12. The forestock 25 is formed with an opening or slot 29 in which the frame 12 and receiver 15 are disposed. The forearm 26 is constructed with a groove 31 in which the barrel 11 rests. The barrel 11, receiver 15 and frame 12 being all integral, are connected to the stock in a manner to be presently described in detail.

The bore of the barrel 11 is indicated by the reference numeral 35 and extends throughout the length of the same. This bore may be rifled or otherwise constructed in the usual manner.

The receiver 15 consists of an enlargement of the barrel 11 which is bored to provide a cartridge chamber 34 forming a continuation of the end of the bore 35 of the barrel 11. The said chamber is further formed with a lugwell 36 in which the forward end of the bolt 13 extends and in which the bolt is locked with respect to the barrel after the cartridge has been placed within the cartridge chamber 34.

The frame 12 is disposed at the rear end of the receiver 15 and comprises two side plates 37 and 38 which are connected together at their forward ends through a cross frame member 39 integral with the receiver 15 and at their rearward ends through a yoke 40 and a tang 41. This tang projects rearwardly of the frame proper and the opening 29 in the forestock 25 and is received in a recess 42 formed in the grip 24 of the stock. The frame 12 is constructed open at the top and bottom, being closed at the upper portion through the bolt housing to be presently described in detail and at the lowermost portion thereof through the lever action of the rifle. Issuing forwardly from the upper portion of the tang 41 is a forwardly extending bracket 30 which supports the trigger and sear of the invention in a manner to be subsequently described in detail.

The barrel, receiver and frame are attached to the stock 10 in the following manner: At the forward end of the forestock 25 is provided a screw 44 which extends through said forestock and is screwed into threads 45 formed in the receiver 15 upon the underside thereof. The head 46 of this screw is seated in a bushing 47 which is countersunk in the lower portion of the forestock 25. A similar screw 48 extends through the grip 24 and is screwed into threads 49 formed in the tang 41. The head 51 of this screw is disposed within a socket 52 formed in a facing 53 extending along the curved forward portion of the grip 24 and forming a striker plate against which the operating lever of the lever action 16 rests when the various levers are in normal position. This facing is countersunk into the forward portion of the grip 24 and is partially held in position through the screw 48. A wood screw 54 extending through the facing 53 near its lower end assists in further holding the facing attached to the stock. In addition to the two screws 44 and 48 for holding the metal parts of the rifle attached to the stock, a band 55 is employed which encircles the barrel 11 in proximity to the forward end of the forearm 26. This band is threaded to receive a screw 56 which extends through the forearm of the stock and serves to hold the barrel rigidly attached to the stock.

The barrel 11 has attached to it the usual front sight 32. On the yoke 40 is mounted the receiver sight 33. These parts forming no particular feature of the invention have not been shown

in detail, though it can be readily comprehended that any suitable construction such as is now well known in the art may be used for the purpose.

The bolt mechanism 30 of the invention is best shown in Figs. 2, 3 and 4. This bolt includes a bolt housing 58 and the bolt 13 which is of tubular form being constructed with a bore 57 extending partially throughout the length of the same. The bolt 13 is slidably mounted in the bolt housing 58 which is guided for movement in the frame 12. Bolt housing 58 is constructed with a bore 59 in which the bolt 13 is received. Bolt 13 is constructed with a shank 61 which slides within said bore 59. The shank 61 is enlarged at the center of the bolt as indicated at 62 to form a shoulder 63 at the rearward end of the same. This enlarged portion slides in an enlargement 60 of the bore 59. By means of this construction axial movement of the bolt 13 in the housing 58 is limited.

The housing 58 as best shown in Fig. 5, is constructed with two laterally extending wings 69 and 70 which are formed with outwardly projecting tongues 64 and 65 at the sides of the same. These tongues are received in grooves 66 and 67 formed in the upper portions of the side plates 37 and 38 of frame 12. By means of this construction the housing 58 is held from rotation and guided for reciprocating movement in a direction parallel to the bore 35 of the barrel 11.

For locking the bolt 13 in the receiver 15 a construction best shown in Figs. 2, 3 and 10 is employed. At the forward end of the bolt 13 is formed a head 68 which is constructed with two outwardly extending diametrically opposed locking lugs 71 and 72. The bore of the lugwell 36 is of sufficient diameter to receive the head 68 and the two lugs 71 and 72 and to permit rotation of the same within said chamber. In the end of the receiver 15 is formed a transversely extending opening 80 which is of a height slightly larger than the width of the lugs 71 and 72 and of a width sufficient to permit of the insertion of the head with the lugs into the lugwell 36. By means of this construction two portions 73 and 74 are formed which serve as cams for engagement with the two locking lugs 71 and 72. The lugs 71 and 72 are formed with helical surfaces 75 which cooperate with similar surfaces 76 on the cams 73 and 74. When the bolt 13 is rotated the surfaces 75 and 76 force the bolt inwardly toward the cartridge chamber 34 in a manner to hold the head of the bolt snugly against the end of the cartridge.

Rotation of the bolt 13 for the purpose of locking the same within the receiver 15 is accomplished by sliding of the bolt housing 58. For this purpose the enlarged portion 60 of the bore 59 of said housing is constructed with two helical grooves 77 and 78, Figs. 5 and 9. Two guide lugs 79 formed on the enlarged portion 62 of bolt 13 are received within these grooves and cause rotation of said bolt when the bolt housing is slid relative to the bolt. At the forward ends of the grooves 77 and 78 the same are constructed radial instead of helical, as shown in Fig. 9 and designated at 81. This is for the purpose of locking the bolt against endwise movement relative to the bolt housing when it is desired to reciprocate the bolt after the same has been unlocked. The bolt 13 is held in a position within the housing 58 by means of a collar 82 which is received in a recess 83 in the end of said bolt housing and held in position therein through a set screw 84.

In order to move the lugs 79 out of the cir-

cumferential portions 81 of the slots 77 and 78, the two locking lugs 71 and 72 are provided with helical edges 176. These helical edges engage corresponding helical edges 177 on the cams 73 and 74. When the lugs are entering into the lug well 36 the bolt is rotated through the said cams and into a position where the said lugs 79 may enter the helical portions of the grooves 77 and 78 to permit of rotation of the bolt as previously described. Further movement of the bolt housing causes rotation of the bolt and the locking of the bolt within the receiver 15.

Discharge of the cartridge is procured through the firing pin 14 which is shown in detail in Fig. 4. This firing pin is of lesser diameter than the bore 57 of bolt 13 and is constructed near its forward end with a collar 86 of proper diameter to slide along said bore 57. The firing pin 14 is further guided for sliding movement within the bore 57 in a bushing 87 which is screwed into the rear end of bolt 13. A compression coil spring 88 is disposed within the bore 57 and encircles the firing pin 14. This coil spring is seated at one end against the bushing 87 and at its other end against the collar 86. This spring serves to urge the firing pin toward the cartridge. On the end of the firing pin is provided the usual striker 89 which is adapted to enter an opening 91 in the end of the head 68 of bolt 13 and to strike the percussion cap of the cartridge 20.

The firing pin 14 is held cocked through the following construction: Secured to the end of said firing pin is a cocking piece 92. This cocking piece is formed with a catch 93 on the underside thereof adapted to be engaged by a sear 94. Sear 94 is disposed within a case 96 attached to the bracket 30. The case 96 is constructed with side walls 97 and 98, Fig. 6, and with front and rear walls 99 and 100. The two walls 97 and 98 are provided with outwardly extending flanges 101 and 102 which are secured to the bracket 30 through rivets 103. In this manner the case 96 is attached to the frame of the rifle and mounted with its walls 97 and 98 spaced from the side plates 37 and 38 of frame 12. The sear 94 is pivoted on a pin 95 which extends through the two walls 97 and 98 of case 96. The trigger 17 is disposed within the case 96 and is pivoted on a pin 104 which passes through said trigger and the two plates 97 and 98 of case 96. This trigger is constructed with a rearwardly extending portion 105 and with a finger piece 106 depending therefrom. A link 107 is pivoted to the portion 105 of trigger 17 through a pin 108. This link extends upwardly and is further pivoted to an arm 109 formed on the sear 94 by means of another pin 111. By means of this construction the sear 94 is moved in a direction to disengage from the catch 93 when the finger piece 106 of trigger 17 is moved rearwardly. For the purpose of urging the finger piece 106 of trigger 17 forwardly and the sear 94 upwardly, a compression coil spring 112 is employed. It will be noted that the pin 95 on which the sear 94 is pivoted is disposed rearwardly of the pivot 104 of trigger 17. Spring 112 is situated forwardly of pin 95 and rearwardly of pin 104 being seated in sockets 113 and 114 formed in said sear and trigger. By means of this construction the single spring 112 causes both parts to function in the proper manner. The movement of the finger piece 106 of trigger 17 is limited by a pin 115 which extends through the two walls 97 and 98 of the case 96. This pin engages a projecting part 116 on the trigger 17 which terminates the movement there-

of when the trigger is in the position shown in Fig. 4. Movement of the finger piece 106 of trigger 17 rearwardly as previously described, swings the sear 94 in a manner to disengage the same from the catch 93 of cocking piece 92, permitting the firing pin 14 to be forced forwardly through spring 88 and to cause the striker 89 to strike the percussion cap of the cartridge 20.

For the purpose of operating the bolt, my improved lever action is employed, which has been indicated in its entirety by the reference numeral 16. This lever action is compound and includes a speed lever 117 and a power lever 118. The power lever 118 is pivoted on a pin 119 which passes through the two plates 37 and 38 of the frame 12. Lever 118 is constructed with a pair of rearwardly extending spaced arms 121 and 122 (Fig. 5) which are connected together by a bridge 123. The bridge 123 is formed at its forward end with a boss 124 which receives the pin 119. The said lever is further constructed with two spaced upwardly extending arms 125 and 126 which are disposed in the same plane as the arms 121 and 122. The two arms 125 and 126 fit in between the two side plates 37 and 38 of frame 12 lying close to the inner surface thereof. Lever 117 is disposed between the two arms 121 and 122 and is pivoted to the ends thereof through a pin 127 which extends jointly through said arms and lever. Lever 117 is constructed similar to lever 118 and is formed with two forwardly extending spaced arms 128 and 129 which are connected together by a connecting portion 131. The two arms 128 and 129 straddle the case 96 and are themselves straddled by the two arms 125 and 126 of lever 118. The lever 117 is further constructed with a rearwardly extending portion 132 which forms a trigger guard for guarding the finger piece 106 of trigger 17. The rearward end of this trigger guard is provided with a loop 133 which serves as a handle for swinging the lever action of the invention. This loop when the lever is in normal position lies along the facing 53 and is disposed as shown in Fig. 1. The free ends of the arms 128 and 129 of lever 117 are constructed with cylindrical heads 134 which are adapted to engage in vertical slots 135 formed in the two wings 69 and 70 of the bolt housing 58. Similar heads 138 are formed on the upper ends of the arms 125 and 126 of lever 118 which are also adapted to engage the same slots 135. These heads slide along the said slots and serve to reciprocate the bolt housing when the lever action is operated. The arms 128 and 129 of lever 117 are guided for movement by pins 136 which are attached thereto and which travel in grooves 137 formed in the side walls 37 and 38 of the frame 12.

The action 16 operates in the following manner: When the levers 117 and 118 are disposed as shown in Fig. 4, bolt 13 is in locked position, the two lugs 71 and 72 thereof being substantially vertical and locked in front of the cams 73 and 74. In this position the heads 138 of lever 118 are received within the slots 135 and the heads 134 of lever 117 are considerably below the bolt 13. In cocking the gun, lever 117 is moved downwardly through the loop 133. As the said lever is pivoted to lever 118, lever 118 is swung about the pin 119 as a pivot and moved to the position shown in Fig. 7. Due to the fact that the pin 136 when at the end of the groove 137 is substantially in alignment with the two pins 127 and 119 the said pin forms a fulcrum for swinging the lever 117, which causes the force imparted to said lever 117 to be transmitted to the

lever 118. Arms 125 and 126 being relatively short as compared to the combined length of the arms 121 and 122 and the trigger guard 132 and loop 133 has appreciable leverage and considerable force is exerted upon the bolt 38 through such movement of the lever action which causes the bolt housing to slide axially with respect to the bolt proper 13. During such movement the two lugs 79 on the bolt slide in the grooves 77 and 78 and cause the bolt to rotate. These grooves being spiralled in the proper direction cause the two lugs 71 and 72 to become disengaged from the respective cams 74 and 73 and to occupy the position shown in Fig. 7. When this occurs the two lugs 79 are at the beginning of the portions 81 of said grooves. Further movement of the bolt housing causes rotation of the bolt through the action of the cam surfaces 177 and 176 which moves the lugs 79 into the portions 81 of grooves 77 and 78. When the said lugs reach such position rotary movement of the bolt ceases and further axial movement of the housing 58 causes a corresponding axial movement of the bolt. While the levers 124 and 125 have moved the housing 58 from the position shown in Fig. 4 to that shown in Fig. 7 for the purpose of unlocking bolt 13, the levers 128 and 129 move upwardly until the heads 134 on said levers are brought into the slots 135. In the position shown in Fig. 7, heads 138 are about to be swung downwardly with respect to the bolt housing 58 and to become disengaged from the slots 135. As this occurs, the heads 134 are brought into engagement with said slots and the movement of the bolt housing 58 continues. When heads 138 are free from the bolt housing, lever 117 operates solely to move the bolt housing axially. During such movement the arms 121 and 122 of lever 118 merely serve as links providing a floating fulcrum for the lever 117. During further movement of the bolt housing the heads 134 are maintained in proper position in the slots 135 through the grooves 137 and pins 136 so that proper operation of the device results. By inspection of the drawings it will be found that approximately one to five and one-half lever advantage is procured while the heads 138 are engaged within the slots 135 and that approximately one to one leverage is procured when heads 134 are in said slots. After the bolt has been unlocked from the lugwell it requires very little force to move the same and the one to one leverage procures rapid movement of the bolt throughout the remainder of the travel thereof. When the bolt and bolt housing are fully retracted the parts are disposed as shown in Fig. 8. It will be noted that the travel of the bolt is sufficiently short relative to the gun proper so as to keep the bolt housing from striking the marksman's face when the lever is operated.

In addition to the cartridge 20 which is disposed in the cartridge chamber 34 of the barrel of the rifle a number of other cartridges 20a and 20b may be kept which are contained within the magazine 18 previously referred to and which are fed one at a time into the receiver as the cartridges are fired and ejected. The magazine 18 in which these cartridges are contained, is a rectangular box-like structure having end walls 141 and 142 and side walls 143 and 144. These walls are connected together through a floor plate 145 which closes the lowermost portion of the magazine. The magazine is attached to and supported between the two side plates 37 and 38 of

the frame 12. For this purpose a rearwardly extending flange 146 is formed on the upper portion of the end wall 141 which flange rests upon and is secured to the bracket 30 by screws 147. The forward portion of the floor plate 145 of said magazine rests upon a ledge 148 which issues rearwardly from the cross frame member 39. A screw 149 passes through this ledge and is threaded into the floor plate 145. The magazine 18 is of a width somewhat greater than the width of one cartridge so that the said cartridges may be arranged within said magazine as shown in Fig. 5. In the particular rifle illustrated the magazine is sufficiently large to receive and hold three cartridges, two of which have been shown in the drawings. In the magazine 18 is provided a follower 151 which is attached to a Z-shaped leaf spring 152. This spring is in turn secured to the floor plate 145. By means of this spring the follower 151 is urged upwardly and tilted to feed the cartridges upwardly in a manner to permit of inserting the same into the cartridge chamber 34 of the rifle. The follower plate 151 is provided with an abutment 153 against which the lowermost cartridge 20b rests and by means of which cartridge 20b is urged toward the wall 144 of the magazine. At the upper ends of the walls 143 and 144 are formed inwardly turned lips 154 and 155. The cartridge 20a when the bolt clears the same in its retracted position is urged against the lip 154 by the cartridge 20b and is held in such position through said lip. When the third cartridge is in the magazine the same is held against the lip 155 in the same manner. Also cartridge 20b when cartridge 20a has been fired is similarly held against lip 155. When the bolt housing 58 is in the position shown in Fig. 4 the lowermost portion thereof engages the cartridge 20a and holds the same below the lip 154 as shown in Fig. 5. When the bolt housing 58 is in the position shown in Fig. 8, the cartridge is free to raise until the same engages the lip 154. In such position the bullet of the cartridge which is smaller in diameter than the shell tilts upwardly until the same is above a bevel 156 formed on the wall 142 of magazine 18 and the cross member 39 of the frame 12. At the same time the center of the bullet is brought in alignment with the medial plane of the rifle. This is accomplished by the particular construction of the lips 154 and 155 which slightly converge. At such time the uppermost portion of the base 158 of the cartridge is in line to be engaged by the lowermost corner 159 of head 68 of bolt 13. As the bolt 13 travels forwardly, said head raises the cartridge along the beveled surface 156 and directs the same through the lugwell 35 and into the cartridge chamber 34 in receiver 15. As the cartridges are drawn from the magazine the bolt housing 58 covers the magazine and holds the succeeding cartridge in position therein. Further operation of the bolt causes repeated action, bringing about the successive feeding of cartridges into the receiver as the same are discharged and extracted.

The extractor 19 is best shown in Figs. 2, 3 and 5. In the bolt housing 58 is formed a T-shaped slot 161. A T-shaped bar 162 is slidably mounted in this slot. This bar is formed at the forward end of the same with a finger 163 which is adapted to engage in the groove 164 of the cartridge 20. When the cartridge is moved upwardly in being transferred from the magazine to the receiver the same automatically is brought into engagement with the finger 63 and so remains during the fir-

ing of the cartridge. The bar 162 is held from longitudinal movement with respect to the bolt 13 by means of a radially extending key 165 which is adapted to engage into a circumferential slot 166 in the head 68 of bolt 13, which slot is situated adjacent the locking lug 72. This construction permits of turning the bolt without turning the extractor and at the same time restrains relative longitudinal movement therebetween.

When the bolt 13 is retracted, key 165 draws the extractor with it causing the finger 163 to withdraw the empty cartridge through engagement with the base 158 of the same.

The ejector 21 is in the nature of a swinging lever which is received within a slot 167 milled in the side plate 37 of frame 12. This ejector is pivoted on a pin 171 mounted in the upper portion of the said side plate. Ejector 21 is formed with an engaging finger 168 which is urged toward the position shown in Fig. 2 by a compression coil spring 169. When the bolt 13 is moved rearwardly the rear corner 172 of locking lug 71 engages an arm 173 formed on the rearward end of ejector 21 and forces the ejector inwardly toward the cartridge. Said lug is constructed with a cavity 174 into which the finger 168 may extend. Upon continued movement of the bolt 13, said finger is caused to engage the base 158 of the cartridge and to throw the shell laterally out of the rifle through an opening 175 in the side plate 38 of the frame 12. When the bolt is moved in the opposite direction, pressure on the lever 173 is released and the ejector 21 again occupies the position shown in Fig. 2. The position of the bolt and the ejector when the bolt is in its extreme retracted position is shown in Fig. 3. In this position the cartridge has been completely ejected from the rifle.

The rifle A may be provided with a safety by means of which the firing pin 14 is held cocked. This safety consists of a transversely disposed spindle 178, Fig. 6, which is rotatably supported in a bore 179 in a bushing 181 formed at the rearward portion of the bolt housing 58. Spindle 178 terminates at one end in a finger piece 180 by means of which the same may be rotated. The spindle 178 is constructed throughout the major portion thereof semi-circular in cross section and is adapted to engage in two round notches 181 and 182. Notch 181 is formed in part 183 integral with the yoke 40 of frame 12 while the notch 182 is formed in the cocking piece 92. When the safety is in the position shown in Fig. 4 the parts may move with respect to one another and the rifle functions in the ordinary manner. When the safety is turned through an angle of 180 degrees the rounded part of the spindle 178 enters the respective notches 181 and 182 and holds the parts locked, but still permitting operation of bolt and housing with the lever action for the purpose of emptying the magazine.

In order to remove the bolt and bolt housing from the rifle, a construction is employed which is best shown in Figs. 8, 11 and 12. Grooves 137 are formed at their rearward ends with downwardly extending branch grooves 185. In the side plate 38 is formed a T-shaped slot 186 which intersects the groove 137 in said side plate. A T-shaped locking bar 187 is slidably mounted in this slot and is provided at its forward end with a finger 188 which forms a continuation of the lower edge of groove 137 and which holds the pin 136 within said groove. When the bar 187 is slid toward the left as viewed in Fig. 8, the pin 136 is unlatched and may travel up and down in the branch groove 186. When pin 136 is at the bot-

tom of groove 186 and bar 187 disposed at the right hand end of slot 186, the finger 188 holds said pin latched in such position. When the parts are so disposed the heads 134 are disengaged from slots 135 and the bolt housing and bolt may be completely removed from the rifle. When the bar 187 is in such position and the pin 136 is at the upper end of groove 186, said pin is free to travel along groove 137 and the lever action is free to function normally. The bar 187 is urged toward the branch groove 186 by means of a compression coil spring 190. This spring is retained within a hole 191 (Fig. 12) drilled in the end of said bar and engages the side plate 38 of frame 12 at the end of the slot 186. Bar 187 is moved against the action of spring 190 by means of a finger piece 192 which is attached to said bar by a machine screw 193. Finger piece 192 operates in a slot in the stock 10 which is protected by an escutcheon 194. It will be noted in Fig. 11 that said finger piece does not extend beyond the surface of the stock 10 so that the same cannot be accidentally manipulated.

My invention is highly advantageous in that a simple and practical lever action is provided which may be used in conjunction with bolt locking type rifles. The action is so constructed as to procure maximum power for the purpose of locking and unlocking the bolt and extracting the cartridge from the receiver and maximum movement during ejection of the cartridge and replacement of the next cartridge. My invention gives all of the advantages of both the bolt type and lever action guns permitting the cartridge to be rapidly ejected and replaced and at the same time giving the rigid backing to the cartridge only possible with the bolt type gun. With my gun any of the highest powered cartridges may be used, which is not possible with previous lever action guns.

Changes in the specific form of my invention, as herein disclosed, may be made within the scope of what is claimed without departing from the spirit of my invention.

Having described my invention, what I claim as new and desire to protect by Letters Patent is:

1. In a gun having a sliding bolt mechanism including a sliding bolt, a locking mechanism for said bolt, said bolt mechanism actuating said locking mechanism throughout a portion of the travel of said bolt mechanism to effect locking of the bolt with respect to the barrel, said bolt mechanism being movable throughout another portion of its travel to direct cartridges into and out of the cartridge chamber, a lever action for moving said bolt, said lever action including a power lever for moving said bolt during locking and unlocking thereof and a speed lever for moving said bolt during the movement of the cartridge, and means for guiding said levers for movement.

2. In a gun having a frame, a bolt mechanism movable along said frame, a lever having two angularly disposed arms, means fixed relative to said frame for pivoting said lever to the frame substantially at the vertex of said arms, one of said arms being connected to said bolt mechanism, a second lever pivoted intermediate its ends to the other arm of said first named lever, said lever having two arms and a finger piece on one of said arms, said other arm of said second named lever being connected to said bolt mechanism, said levers being arranged to procure operation of said bolt through the first named lever when the bolt is being locked and unlocked and

through said second named lever when the bolt moves throughout the remainder of its path of movement.

3. In a gun having a frame, a bolt mechanism movable along said frame, a lever having two angularly disposed arms, means fixed relative to said frame for pivoting said lever to the frame, one of said arms being connected to said bolt mechanism, a second lever pivoted intermediate its ends to the other arm of said first named lever, said second lever having two arms and a finger piece on one of said arms, said other arm of said second named lever being connected to said bolt mechanism, an elongated guideway along said frame, and means carried by said second named lever and engaging said guideway for controlling the movement of said second named lever.

4. In a gun having a frame, a bolt mechanism slidable longitudinally of the gun and along said frame, a lever pivoted to said frame below said bolt mechanism and having two arms, one of said arms extending upwardly and being adapted to engage said bolt mechanism throughout a portion of the movement of said lever, a second lever pivoted to the other arm of said first named lever, said second named lever having an arm normally disengaged from said bolt mechanism and adapted to move into engagement with said bolt mechanism as the bolt mechanism engaging arm of said first named lever moves out of engagement with said bolt mechanism.

5. In a gun having a frame, a bolt mechanism movable along said frame and having a part formed with a slot, a power lever and a speed lever, means for pivoting said levers for relative swinging movement, and heads on said levers adapted to alternately engage said slot for propulsion of said bolt mechanism at different speeds.

6. In a gun having a frame, a bolt mechanism movable along said frame and having a part formed with an abutment, a power lever and a speed lever, means for pivoting said levers for relative swinging movements, and engaging members on said levers adapted to alternately engage said abutment for alternate propulsion of said bolt mechanism at different speeds.

7. In a gun having a frame, a bolt mechanism movable along said frame and having a rotating part, a locking mechanism actuated by said rotating part, cam means on said frame cooperating with said bolt mechanism and procuring rotation of said rotating part upon movement of the bolt mechanism along the frame, said bolt mechanism throughout a portion of the movement thereof effecting rotation of said part to lock the bolt in position and throughout the remainder of the movement thereof to eject cartridges, a power lever and a speed lever, means for pivoting said levers for swinging movement, said power lever engaging said bolt mechanism throughout the movement thereof procuring rotation of said rotatable part and said speed lever engaging said bolt mechanism throughout the movement thereof during which cartridges are ejected.

8. In a gun having a frame, a bolt mechanism movable along said frame, a lever pivoted to said frame and having an arm adapted to engage and move said bolt mechanism, a second lever pivoted to said first lever at a locality spaced from the pivot of said first named lever and having an arm adapted to engage and move said bolt mechanism, a finger piece connected to one of said levers, and

means for guiding one of said levers to procure predetermined relative movement between said levers and bolt mechanism.

9. In a gun having a frame, a bolt mechanism movable along said frame, a lever pivoted to said frame and having two arms, one of said arms being adapted to engage and move said bolt mechanism, a second lever pivoted to the other arm of said first named lever at a locality spaced from the pivot of said first named lever, and having an arm adapted to engage and move said bolt mechanism, and means for operating said levers.

10. In a gun having a frame, a bolt mechanism movable along said frame, a lever pivoted to said frame and having two arms, one of said arms being adapted to engage and move said bolt mechanism, a second lever pivoted to the other arm of said first named lever at a locality spaced from the pivot of said first named lever and having an arm adapted to engage and move said bolt mechanism, and a finger piece secured to said last named lever.

11. In a gun having a frame, a bolt mechanism movable along said frame, a lever pivoted to said frame and having an arm provided with a part fixed thereto adapted to directly engage said bolt mechanism and to move the same, a second lever pivoted to said first lever at a locality spaced from the pivot of said first named lever and having an arm provided with a part fixed thereto and adapted to directly engage said bolt mechanism and to move the same, a finger piece fixed relative to one of said levers, and means for guiding one of said levers to procure alternate engagement of said arms with said bolt mechanism.

12. In a gun having a frame, a bolt mechanism movable along said frame, a lever pivoted to said frame and having two arms, one of said arms being provided with a part fixed thereto and adapted to directly engage said bolt mechanism and to move the same, a second lever pivoted to the other arm of said first named lever, and having an arm provided with a part fixed thereto and adapted to directly engage said bolt mechanism and to move the same, and means for operating said levers.

13. In a gun having a frame, a bolt mechanism movable along said frame and having a rotating part, a locking mechanism actuated by said rotating part, cam means on said frame cooperating with said bolt mechanism and procuring rotation of said rotating part upon movement of the bolt mechanism along the frame, said bolt mechanism throughout a portion of the movement thereof effecting rotation of said part to lock the bolt in position and throughout the remainder of the movement thereof to eject cartridges, a power lever and a speed lever, means for pivoting said levers for swinging movement, said power lever engaging said bolt mechanism throughout the movement thereof procuring rotation of said rotatable part, said speed lever engaging said bolt mechanism throughout movement thereof during which cartridges are ejected, and means for operating said levers to procure movement of said bolt mechanism first by one of said levers and then by the other of said levers.

14. In a gun having a frame, a bolt mechanism movable along said frame and having a rotating part, a locking mechanism actuated by said rotating part, cam means on said frame cooperating with said bolt mechanism and procuring rotation of said rotating part upon movement of the bolt mechanism along the frame, said bolt

mechanism throughout a portion of the movement thereof effecting rotation of said part to lock the bolt in position and throughout the remainder of the movement thereof to eject cartridges, a lever pivoted to said frame and having two arms fixed relative to one another, one of said arms being connected to the bolt mechanism, a second lever pivoted to the other arm at a locality spaced from the pivot of said lever to the frame, said first named lever having two arms fixed relative to one another and a finger piece on one of said arms, said other arm of said second named lever being connected to said bolt mechanism, said levers being arranged to procure operation of said bolt mechanism through the first named lever throughout the movement of said bolt mechanism procuring rotation of said rotatable part and through said second named lever throughout

the movement of said bolt mechanism during which cartridges are ejected.

15. In a gun having a frame, a bolt mechanism slidable longitudinally of the gun and along said frame, a lever pivoted to said frame below said bolt mechanism and having two arms, one of said arms extending upwardly and being adapted to engage said bolt mechanism throughout a portion of the movement of said lever, and a second arm fixed relative to the first named arm and extending substantially horizontally, operating means connected to said horizontally extending arm for moving said lever at a low rate of speed to effect locking and unlocking of the bolt mechanism, said operating means including means operating in unison therewith for subsequently moving the bolt mechanism at a greater rate of speed.

ERNEST F. JACOBSON.