J. T. THOMPSON.

GUN.

APPLICATION FILED APR. 22, 1920.

1,363,696.

Patented Dec. 28, 1920.

5 SHEETS—SHEET 1.

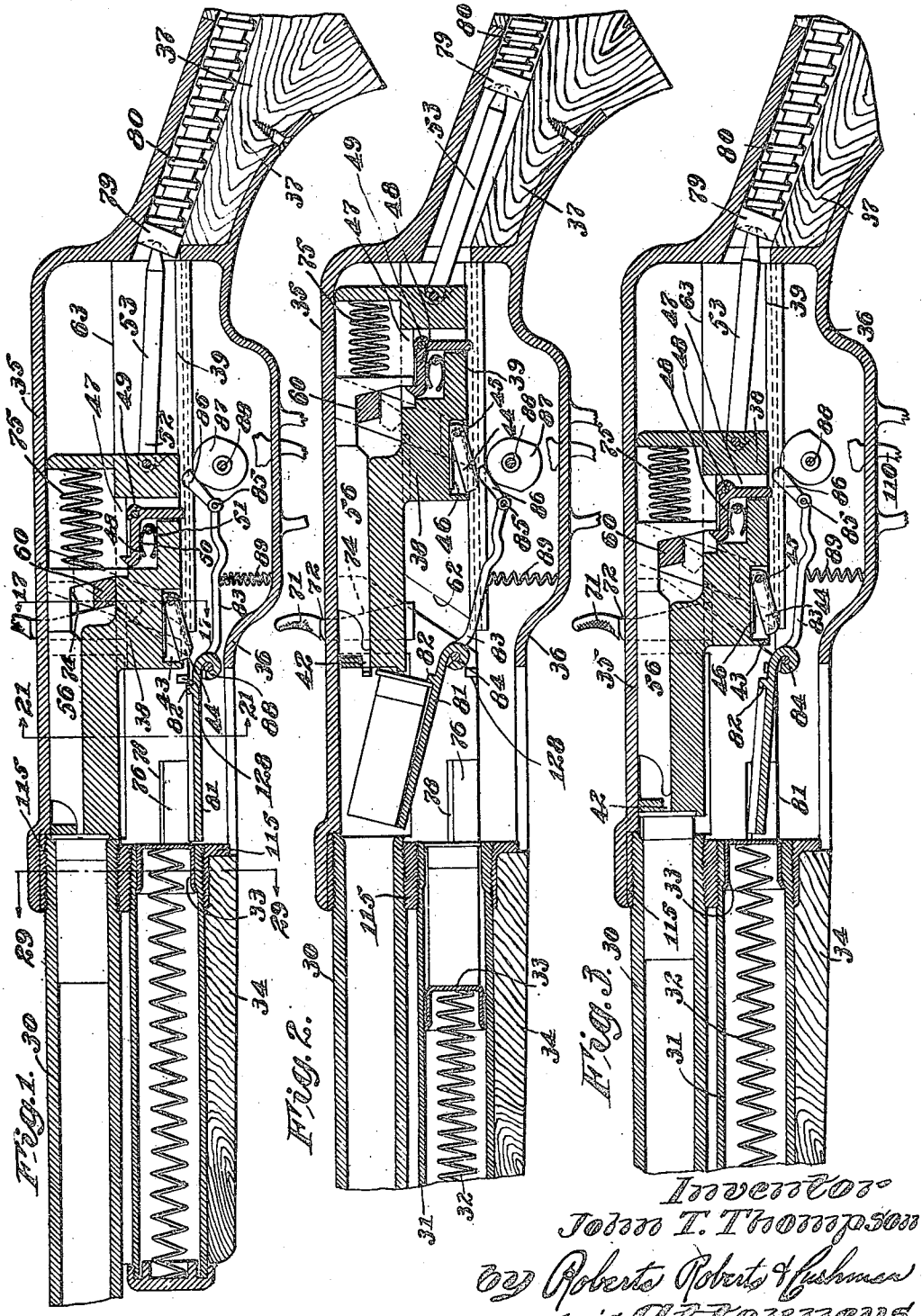

Fig. 1.

Fig. 2.

Fig. 3.

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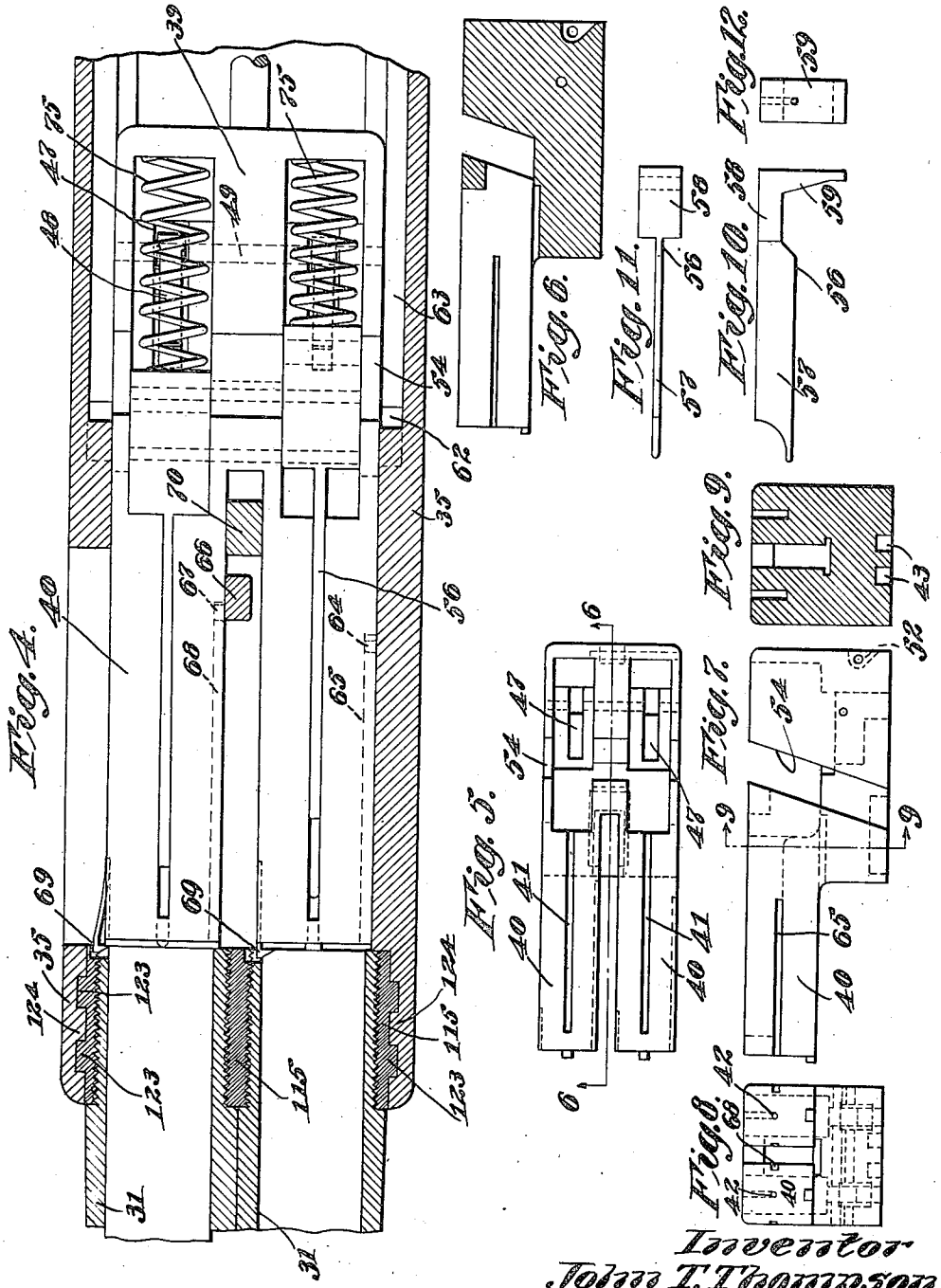

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Fig. 16.

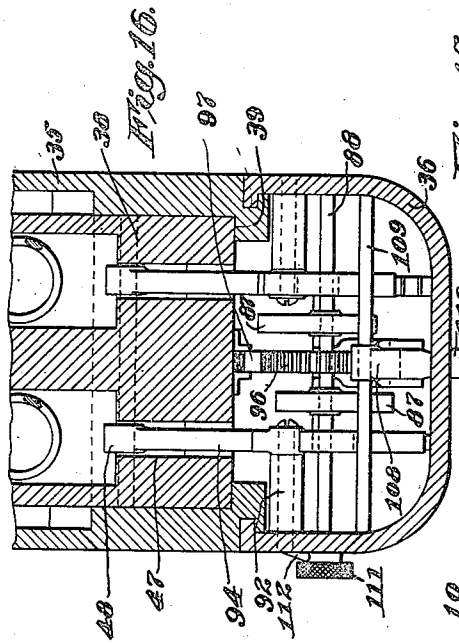


Fig. 15.

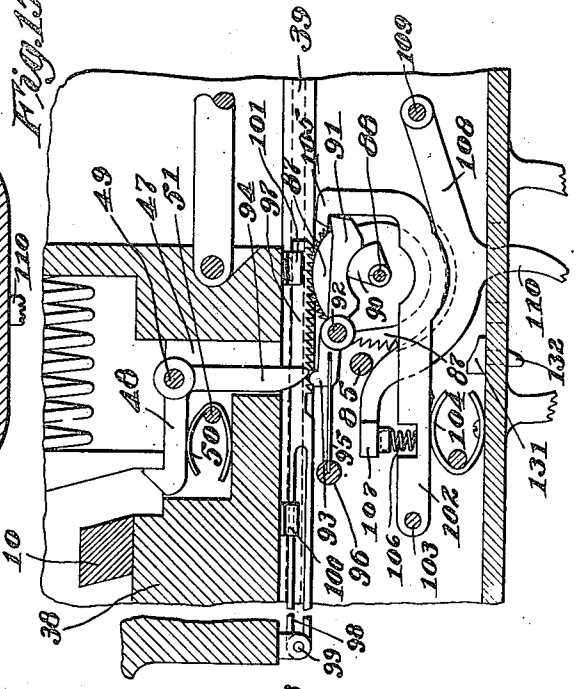


Fig. 13.

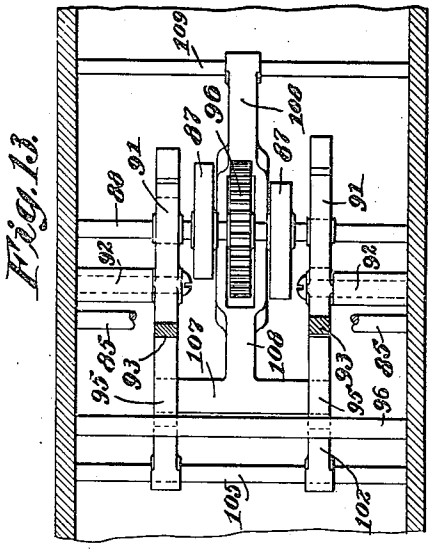
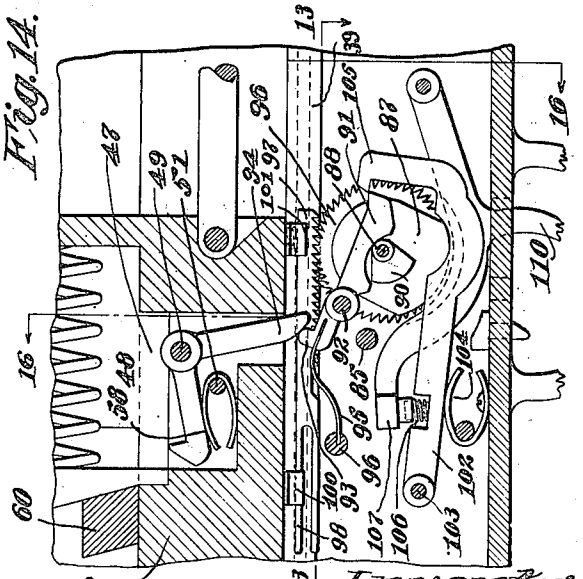


Fig. 14.



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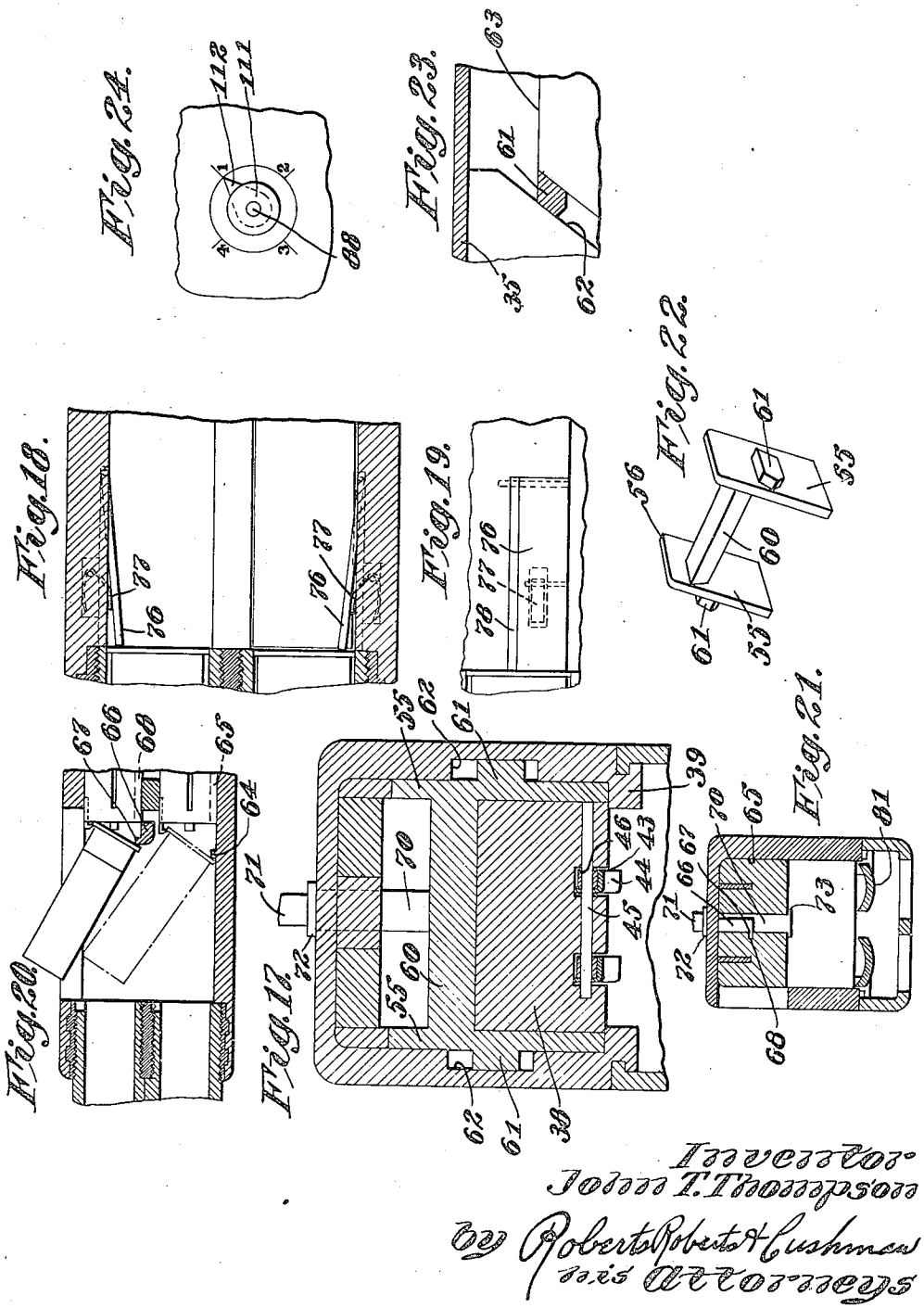

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5 SHEETS—SHEET 5.

Fig. 28.

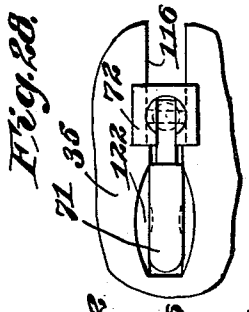


Fig. 26.

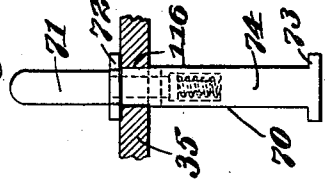


Fig. 31.

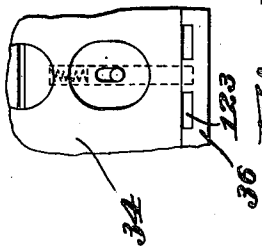


Fig. 25.

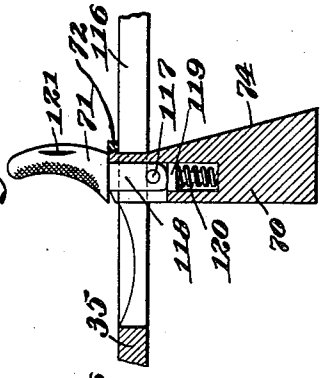


Fig. 30.

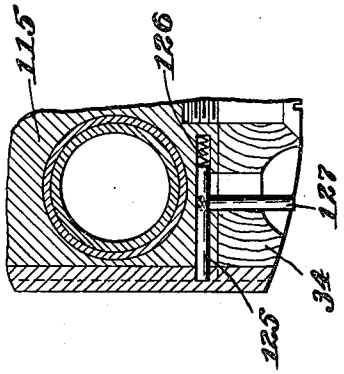


Fig. 27.

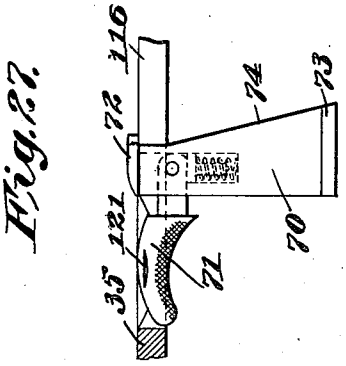
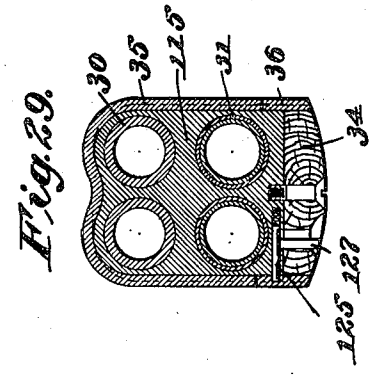


Fig. 29.



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UNITED STATES PATENT OFFICE.

JOHN T. THOMPSON, OF NEWPORT, KENTUCKY, ASSIGNOR OF ONE-HALF TO THOMAS F. RYAN, OF NEW YORK, N. Y.

GUN.

1,363,696. Specification of Letters Patent. Patented Dec. 28, 1920.

Application filed April 22, 1920. Serial No. 375,675.

To all whom it may concern:

Be it known that I, JOHN T. THOMPSON, a citizen of the United States, and resident of Newport, in the county of Campbell and State of Kentucky, have invented new and useful Improvements in Guns, of which the following is a specification.

My invention relates to improvements in firearms and more particularly to an improved double barreled automatic shotgun.

Shot guns of the single loading type have very generally been made with double barrels. While one reason for this construction was to secure two shots without reloading, it has come to be the general practice to provide such guns with barrels differing in interior conformation and thereby adapted to be used for different purposes. Customarily one barrel is formed with a cylindrical bore and the other barrel with what is known as a choke bore. The choke bore is slightly contracted in diameter at the muzzle which has the effect of bunching the shot more closely, thus giving it somewhat greater carrying power and making a closer pattern at the longer ranges. It is usual to use the cylindrical bore when the game is close and to use the choke bore for the second shot when the game is more distant. A choke bore is not desirable for use in shooting game at short ranges since the close bunching of the shot tends to cause the game to be unnecessarily mutilated and so filled with shot as to be unfit for consumption. In using a cylindrical bore for the long range work the shot is so widely scattered that game may be in the center of the pattern and yet not receive sufficient shot to disable or kill it. These two types of bores each have their individual characteristics and functions and are not interchangeable for their special uses.

In so far as I am aware, automatic shotguns heretofore designed have been made with a single barrel. This barrel has been either cylindrical or choked or in some cases has been made with a modified choke in the endeavor to secure the advantages of both the cylindrical and choked types of barrel. While an automatic gun of this type accomplishes the purpose of providing a plurality of shots without reloading, it can not furnish the user with the different barrels for close and distant shooting.

Furthermore a large number of sportsmen and users of shotguns are accustomed to using a double barreled gun. They are familiar with its "feel", and its appearance, and they are accustomed to sighting along the broad top of a double barreled gun. For all of these reasons they prefer a gun with two barrels and will not use the single barreled automatics which differ widely in appearance and "feel" from the guns to which they have been accustomed.

The usual double barreled single loading shotguns provide two shots without reloading but these shots, in guns provided with one cylindrical and one choke barrel, are limited to one shot from such barrel. It may often occur that conditions are such that it is not at all desirable to fire two shots in this manner. That is, the nature of the game may be such that it cannot be closely approached in which case shots from the choke bore only will be useful. On the other hand the game may be of a character found in large flocks or coveys which may be closely approached so that more than one shot from a cylindrical bore may be desirable. While in the latter case the choke bore could be used, it would be destructive of the game as has been pointed out above.

In either of these two conditions then, the usual double barreled gun is often little if any better than a single barreled gun for the particular purpose of the moment. The gun to be most desired is a gun which is provided with both the cylindrical and choke barrels and yet which will fire more than one shot from either or both barrels selectively at the will of the user.

It is an object of my invention to provide a new and improved automatic gun, and more particularly a double barreled shot gun permitting selective fire of the two barrels. It is also an object in connection with such a gun to provide means for selectively loading either barrel, and means for selectively releasing the firing mechanism of the loaded barrel by a single trigger common to the firing mechanism of both barrels. It is an additional object to provide automatically operating means adapted to load the two barrels in a predetermined sequence, and to so construct this means as to permit the sequence to be varied at the will of the operator. It is a further object to provide a gun

of the character described which is simple in construction and inexpensive to manufacture, which is composed of relatively few parts and which is safe and positive in its operation.

Other and further objects will appear as the description proceeds.

I have shown a preferred embodiment of my invention in the accompanying drawings, in which—

Figure 1 is a longitudinal section showing the breech mechanism of my gun in the closed position;

Fig. 2 is a section similar to Fig. 1 but showing the breech just as the closing movement is started;

Fig. 3 is a section similar to Fig. 1, but showing the breech almost closed;

Fig. 4 is a plan view, on an enlarged scale and partly in section showing the breech block and firing mechanism;

Fig. 5 is a plan view of the breech block;

Fig. 6 is a section on line 6—6 of Fig. 5;

Fig. 7 is a side view of the breech block;

Fig. 8 is a view of the breech block as seen from the forward end;

Fig. 9 is a section taken on line 9—9 of Fig. 7;

Fig. 10 is a side view of the firing pin;

Fig. 11 is a plan view of the firing pin;

Fig. 12 is an end view of the firing pin as seen from the rear;

Fig. 13 is a plan view on line 7—7 of Fig. 14 on an enlarged scale showing the trigger and loading control mechanism;

Fig. 14 is a side view on an enlarged scale showing the firing mechanism with the trigger in its rear position;

Fig. 15 is a view similar to Fig. 14 but showing the trigger in the forward position;

Fig. 16 is a cross-section on an enlarged scale, taken on line 16—16 of Fig. 14;

Fig. 17 is a cross-section on an enlarged scale, taken on line 17—17 of Fig. 1;

Fig. 18 is a horizontal section on an enlarged scale showing the cartridge detents;

Fig. 19 is a fragmentary elevation showing one of the cartridge detents;

Fig. 20 is a fragmentary section illustrating the operation of the ejectors;

Fig. 21 is a section on line 21—21 of Fig. 1;

Fig. 22 is a perspective view of the locking member;

Fig. 23 is a fragmentary view illustrating the relation of the lock to the receiver;

Fig. 24 is a fragmentary view showing the loading and firing indicator;

Fig. 25 is a fragmentary side view, partly in section, showing the actuator;

Fig. 26 is a fragmentary view showing the actuator as seen from the rear;

Fig. 27 is a fragmentary view showing the actuator in its lowered position;

Fig. 28 is a view of Fig. 27 as seen from above;

Fig. 29 is a cross section taken on line 29—29 of Fig. 1;

Fig. 30 is a fragmentary view showing the take down catch; and

Fig. 31 is a view of Fig. 30 as seen from below.

Referring particularly to Figs. 1, 2 and 3, my inproved gun comprises the barrels 30, magazine tube 31, magazine spring 32, follower 33, fore piece 34, assembly block 115, receiver 35, housing 36, and stock 37.

The breech block 38 reciprocates in the receiver 35, riding upon the ledges 39 on the lower edges of that member as shown in Fig. 16. The forward portion of the block as shown in Figs. 5, 6, and 8 is reduced in vertical depth and bifurcated to form the twin bolts 40—40. Each bolt is provided with the longitudinal slot 41 opening through its upper surface and through the forward end at 42 to permit passage of the firing pin 57. The lower surface of the breech block is recessed at 43, 43 to receive the loading cams 44 which are pivoted on the pins 45 and are normally depressed by the springs 46. The rear ends of these cams 44 are formed to contact with the upper surface of the recesses 43 so as to prevent the cams dropping below the position shown in Figs. 1 to 3.

The rear portion of the breech block is pierced at 47, 47 to receive the sears 48 which are pivoted upon the pin 49. The sears are normally pressed upward by the springs 50 which are retained in position by the pins 51. The rear face of the breech block is recessed at 52 to receive the forward end of the recoil thrust rod 53. The sides of the block are provided with oblique grooves 54 to receive the side members 55 of the lock 56.

Each forward member of the breech block or bolt 40 is provided with a firing pin 57 formed, as shown in Figs. 10, 11 and 12, with a vertically flattened forward portion 57 and a widened rear portion 58 having the depending member 59, the forward surface of which is adapted to coöperate with the cross bar 60 of the lock and the foot of which engages the sear 48.

The lock 56, shown in Fig. 22, has the side members 55 sliding in the oblique groove 54 of the breech block, these side members carrying the lugs 61 which slide in the grooves 62 in the receiver as shown in Fig. 23 and after leaving the grooves 62 ride rearwardly on the ledges 63 during the recoil of the breech block. The cross bar 60 of the lock extends across the full width of the breech block and its rear surface cooperating with the sloping surfaces 59 of the firing pins carries those members rear-

wardly to the cocked position during the unlocking movement of the bolt as is clearly shown in Figs. 1 and 2.

The inner face of the left-hand side of the receiver is provided with the ejector 64 which operates in the slot 65 of the left-hand bolt and acts to eject the shells from the left-hand barrel. The lug 66 which extends down from the upper inner face of the receiver and operates in the slot between the twin bolts 40, carries the ejector 67 for the right-hand barrel which operates in the slot 68 in the right-hand bolt. As clearly shown in Fig. 20 the ejector 67 is slightly in the rear of the ejector 64 in order that it may not interfere with the shells ejected from the left-hand barrel.

The bolts each carry on their right-hand sides the spring extractors 69 as shown in Fig. 4.

The gun is provided with the hand actuator 70 which operates in the channel between the two twin bolts. This actuator is provided with the finger piece 71, the top guide piece 72 riding on the outer surface of the receiver, and the lower guide lugs 73 riding under the lower surfaces of the twin bolts as best shown in Fig. 21. The rear sloping surface 74 of the actuator coöperates with the cross bar 60 of the lock member.

This hand actuator is not attached to any other members of the gun, and in the normal automatic action of the piece it does not reciprocate. It is formed so that the finger piece 71 may be folded down into the forward portion of the slot 116 in the receiver 35 through which the actuator passes. The lower extension 118 of the finger piece is hinged to the actuator 70 by the pin 117. A plunger 119, pressed upward by the spring 120, bears against the lower face of this member 118, and due to the cam formation of this surface, the plunger tends to yieldably maintain the finger piece in either the upper or lower position. To facilitate lifting the finger piece from the lower to the upper positions it is provided with the grooves 121 and the adjacent edges of the slot 116 are cut away as indicated at 122. The top guide 72 is separable from the actuator, being screw threaded thereto as indicated in Figs. 25 and 28, and with the finger piece 71 in the upward position, the member 72 may be screwed from the actuator to permit the breech block to be moved downwardly and forwardly in disassembling the gun.

The firing pin actuating springs 75 are seated in the bolt 38, their forward ends bearing against the rear of the firing pins and their rear ends against the forward face of the rear of the breech block.

As shown in Fig. 18, either side of the receiver adjacent the rear end of the magazine is provided with a cartridge detent 76 normally held pressed outward by the spring 77. The upper edge of the detent is beveled as shown at 78.

The recoil thrust bar 53 bears at its lower end on the thrust cup 79 which bears against the recoil spring 80 which runs down into the stock at an angle as shown in Figs. 1 to 3.

The gun is provided with two feed spoons 81 concave upwardly in cross section as shown in Fig. 21 and provided with the transverse stop 82. These spoons are attached to the lift levers 83 by spring hinges 84 which are normally as shown in Figs. 1 to 3. The lift levers are pivoted on the shaft 85 and their rear portions form the actuating extensions 86, adapted to coöperate with the rotating lock cams 87 which are fast to the shaft 88. The lift lever is normally held by the tension spring 89 in the position shown in Fig. 1.

As shown in Figs. 13 to 15, the shaft 88 also carries the trigger lock cams 90. These cams 90 coact with the sear actuating levers 91 which are pivoted on the shafts 92, and the forward ends 93 of which coact with the lower end 94 of the sears 48. The levers 91 are normally held in the position shown in Fig. 15 by the flat springs 95 which are fixed in the cross rod 96.

Carried by the shaft 88 is the gear wheel 96 which is adapted to mesh with the rack 97 mounted upon the lower face of the breech block 38.

This rack 97 has the slotted connection 98 to the pivot 99 on the breech block and is guided between the lugs 100 and the lugs 101, which latter have a spring between them pressing the rack normally into engagement with the gear wheel 96.

The hook connecting levers 102 have their forward ends pivoted upon the cross shaft 103 and are normally held in the position shown in Fig. 15 by the springs 104, the hooked rear ends 105 engaging the levers 91. Adjacent their forward end, the levers 102 are provided with seats to receive springs 106, the upper ends of which are seated in the lower face of cross bar 107 extending from the forward end of the trigger lever 108. The rear end of the trigger lever is pivoted upon the shaft 109 and the trigger 110 extends downward from the lever and through the housing 36.

A safety catch 131, having a finger piece 132 is placed adjacent the trigger as shown in Figs. 14 and 15. When moved rearwardly the latch contacts with the under surface of the lever 108 in front of the trigger and thus prevents firing the piece.

As shown in Figs. 16 and 24, the left end of the shaft 88 extends through the housing 36 and has mounted on its outer end the knurled thumb screw 111 carrying the

pointer 112. Numerals as shown in Fig. 24 are marked on the outer face of the receiver around the thumb screw and with the pointer 112 serve to indicate the position of the several cams carried by the shaft 88.

My gun is provided with means whereby it may be readily taken down for carrying purposes. The barrels and magazines are assembled in the assembly block 115 and together form a unitary structure. The sides of this block are formed with vertical ribs 123 which coact with ribs 124 formed in the forward part of the receiver 35 and the housing 36. These ribs serve to firmly and positively lock the two sections of the gun together. To prevent relative vertical movement the catch 125 is provided as shown in Figs. 29 to 31. This catch fits in the lower portion of the assembly block 115 and is normally pressed outward by the spring 126 so that its forward end engages the housing 36 and locks the two portions of the gun together. The latch may be retracted by the finger piece 127 which extends through the fore piece 34 and the gun may then readily be taken down. Obviously two of these latches, one placed on either side, may be provided if desired.

The lugs 128, shown in Figs. 1 and 2, extending inwardly and upwardly from the housing 36 are provided to prevent the breech block moving forward out of the receiver when the gun is taken down. As shown these lugs are placed slightly in advance of the normal closed position of the breech so that the breech block does not normally contact with them.

My gun may be readily disassembled, first being taken down, the screw 129 which connects the housing 36 to the stock is then removed and the housing is moved forward, the overhang 130 sliding forward in its groove in the receiver. The housing carries with it the loading and firing mechanism and also the lugs 128 which limit forward movement of the breech block.

The member 72 of the actuator is now unscrewed and the breech block may readily be slipped forwardly and downwardly out of the receiver.

The operation cycle of my gun may be considered to start with the parts in the position shown in Fig. 1 with the exception that no cartridge will be in the barrel. The two magazines are first loaded by pressing cartridges one at a time in through the ports in the base of the housing 36 against the spoons 81 which turn upward about the spring pivots 84. The cartridges are then pressed forward against the followers 33 into the magazines 31, which preferably are made of a length sufficient to each contain two cartridges, although they may be made to contain more if desired. The cartridge detents 76 turn inward under pressure of the cartridges to permit it to pass but spring out to catch the base of the cartridge after it has been pushed into the magazine as shown in Fig. 18 and thus prevent it from being forced out by the magazine spring. The spoon 81 is then returned to its position as shown in Fig. 1 by the spring in the hinge 84, the side of the spoon contacting with the beveled surface 78 upon the upper edge of the detent and forcing it in and out of position, the spring in the hinge being stronger than the detent spring 77. When the spoon reaches its normal position, the magazine spring forces the cartridges rearwardly, the rearmost one being stopped by the lug 82 upon the spoon.

The magazine being loaded and the cam shaft being turned so that the right-hand spoon control cam is in the position shown in Fig. 2, the indicator 112 pointing to 1, the breech block is now pulled to the rear by means of the finger piece 71 of the actuator. Upon pulling the actuator to the rear its rear cam surface 74 coöperates with the cross piece 60 of the lock to lift that member which is drawn rearwardly and upwardly relative to the breech block and the receiver, the block being guided in the oblique slots 54 in the breech block and being guided relative to the receiver by the interfit of the lugs 61 in the channels 62. When the lugs 61 clear the rear face of this channel 62 the block and lock move rearwardly, maintaining the relative position shown in Fig. 2. It will be noted that during this unlocking movement the rear face of the cross bar 60 has coöperated with the firing pins to carry them rearwardly until they have become held by the sears 48. In Fig. 2 the actuator is shown in its forward position where it remains during subsequent automatic operation, but when used for manual operation it would be at the rear bearing against the cross-bar 60 of the lock.

As the block moves rearwardly the right hand cam 44 contacts with the lever arm 86, and lifts the spoon into the position shown in Fig. 2. The spring 46 is strong enough to maintain the cam 44 downward and to cause the spoon to lift against the resistance of the light spring 89. During this rearward movement the recoil thrust bar 53 has compressed the spring 80 and upon now releasing the actuator that spring forces the breech assembly forward carrying the cartridge into the chamber. As the spoon swings the rearmost cartridge upward, it passes above the cartridge detent 78 which swings out and prevents the next cartridge from moving rearwardly and catching under the spoon. When the spoon drops down the cartridge is released from the detent as has heretofore been described.

The control cams 87 for the right and left spoon are at an angle of 180° from each

other and while the right hand barrel cam is as shown in Fig. 2, that for the left-barrel is as shown in Fig. 1 and is in positive contact with the lower surface of the lever 86.

The left-hand cam 44 cannot therefore depress the lever 86 but instead is thrust upward against the spring 46 and the left barrel is not loaded.

As the breech block moves rearwardly, the pivot 99 passes along the slot 98 in the rack 97 until it reaches the rear end of that slot when it carries the rack rearwardly with it. Due to the form of the teeth upon the rack and the wheel 96, the latter is not rotated, the rack pressing upward against the spring between the lugs 101. When the breech block moves forward the teeth on rack and wheel intermesh and the pivot 99 passes to the forward end of the slot 98 and then carries the rack forward with it for the latter portion of its motion. The slot, rack and wheel are so proportioned that the wheel is rotated 90° during each forward motion of the bolt, thus turning the cam shaft 88 and the spoon and trigger control cams through that angle.

The gun now has its right barrel loaded and the firing pins cocked and the right hand trigger control cam 90 is in the position shown in Fig. 14 while the left-hand trigger control cam is in the position shown in Fig. 15.

If desired another cartridge may now be inserted in the right-hand magazine, thus making a total of five, four in the magazines and one in the right-hand barrel.

To fire the right hand barrel it is now simply necessary to pull the trigger. Pulling the trigger rearwardly moves the trigger lever from the position shown in Fig. 15 to that of Fig. 14. The left-hand lever 91 is retained in the position shown in Fig. 15 by the cam 90 and the movement of the trigger lever simply compresses the left-hand spring 106 between the lever 102 and the cross arm. 107. Upon the right-hand side of the gun, however, the lever 102 is depressed by the pressure transmitted through the spring 106 and the hooked rear end 105 of the lever pulls down the lever 91 thus thrusting the cam 93 against the lower arm 94 of the sear and drawing the sear downward to release the firing pin. As shown in Fig. 14 as this is done the lever 105 slips off the end of the lever 91 thus disconnecting the trigger from the sear and preventing the gun from being fired a second time upon automatic reloading, which takes place more rapidly than it is possible to release the trigger pressure.

The relation of the oblique slots in the breech block and the receiver to the side members and the lugs upon the lock is such as to lock the breech block upon what is known as the "Blish angle," as described in the patent to Blish, 1,131,319, March 9, 1915. This angle is such that the block is retained locked until the powder pressure has fallen below a predetermined working limit when the block is automatically opened by this pressure.

Upon pulling the trigger and firing the right hand barrel, the powder pressure unlocks the breech block and carries it to the rear, the several parts functioning as has been described for the manual operation with the exception that the actuator, being disconnected from the breech block, will not reciprocate but will remain as shown in Fig. 2.

The relation of the cams on the shaft 88 is such that when the bolt goes forward after the first or hand loading, the spoon control cam on the right side will move 90° in the counter clockwise direction from the position shown in Fig. 2, and the left-hand cam will move through the same angle counter clockwise from the position shown in Fig. 1. It will be observed that these positions still permit the right barrel to be loaded and prevent the left barrel from being loaded when the bolt is next opened.

After this first loading the right and left-hand trigger cams will be in the positions in which the cam 90 is shown in Figs. 14 and 15, respectively.

On the loading and closing movement after firing the first shot, the right barrel will have been again loaded and the rack and wheel will again turn the cam shaft through 90° counter clockwise as seen in Figs. 14 and 15. This will then have been a total movement of 180° and the right-hand spoon control cam will have moved from the position shown in Fig. 2 to that shown in Fig. 1 and the left-hand cam vice-versa, so that the third cartridge will be loaded into the left-hand barrel.

The right-hand barrel is now loaded however with the second cartridge and since the right-hand trigger control cam will be in a position 90° counter clockwise beyond the position shown in Fig. 14, the right barrel can still be fired.

On firing the second shot, the left barrel will be loaded with the third cartridge and on firing the third shot the left barrel will again be loaded for the fourth shot. Firing this fourth shot will complete the cycle, the cam shaft will have been rotated a total of 360 degrees and, if the right-hand magazine has had a fifth cartridge placed in it since the initial hand loading, the right barrel will be loaded. Upon now reloading both magazines the cycle may be repeated, without, however, the necessity for any further hand loading.

It will be noted that the cam shaft is actuated between the loading of a shot and its being fired since the loading lift takes place at the end of the rearward stroke while

the firing takes place after the forward stroke during which rotation of the cam shaft takes place. Therefore, as clearly shown in Figs. 14 and 15 the firing cams are 90° in retard behind the loading cams on the same side of the gun.

By means of the thumb screw 111 the sequence of shots may be varied as desired. If the screw is turned before firing the first shot but either before or after loading it, so that the indicator points to 2, one shot only will be fired from the right barrel, followed by two from the left barrel. Or if the screw is turned to 3 before loading, the gun will fire two shots from the left and then two from the right.

The screw may be turned at any time during the cycle of fire and turned to any quadrant, provided, however, that if it is turned so as to fire the barrel other than that loaded the bolt must be manually retracted to load that other barrel, this retraction extracting and ejecting the unfired shell from the loaded barrel. Either or both magazines may be loaded at any time during the cycle of fire when one or both of the cartridges therein have been fired or lifted to the barrel.

The magazines of my gun have been made short so as to shorten the length of the fore piece and to preserve the appearance and balance of the usual non-automatic double barreled shot gun.

My recoil spring has been made to extend into the stock thus shortening the necessary length of the receiver and tending to preserve the usual shot gun appearance.

Since I use the Blish lock which does not unlock until the breech pressure has much decreased I do not require the very heavy recoil springs found in the usual automatic shot guns wherein the breech and often the barrel also recoil under the initial heavy powder pressure.

By loading either barrel and then filling the corresponding magazine I may fire that barrel three times in succession without reloading the magazine, by turning the cam shaft backward 90° between either the first and second or second and third shots.

While I have shown and described a gun adapted to fire the two barrels each for two successive shots, it is obvious that by simply varying the length of the toothed rack 97 and the length of the slot 98 which permits lost motion, I may cause my gun to fire each barrel alternately or on the other hand to fire each barrel three times by providing magazines of that capacity. Other variations in the cycle of fire may be readily made by changes in the sizes and location of the cams on the cam shaft 88.

It will be observed from an examination of Fig. 29, that the central upper portion of the assembly block and the receiver are depressed. While this aids in maintaining a rigid connection between the parts, its most important function is the provision of a level surface extending along the receiver and between the barrels. With the actuator folded down, the line of sight along the gun will be entirely uninterrupted and similar to that on the usual double barreled shot gun.

I claim:

1. A gun having a plurality of barrels and means for automatically loading the barrels in predetermined sequence, and by which each barrel is normally loaded a plurality of successive times.

2. A gun having a plurality of barrels and means for loading the barrels in predetermined sequence, and by which each barrel is normally loaded a plurality of successive times, and a single trigger adapted to fire a loaded barrel.

3. A gun having a plurality of barrels and means for loading the barrels in predetermined sequence and by which each barrel is normally loaded a plurality of successive times, a single trigger, and control means adapted to permit the trigger to fire a barrel which has been loaded.

4. A gun having a plurality of barrels and means for automatically loading the barrels in predetermined sequence, said means being adjustable to vary the sequence, and a single trigger and control means adapted to permit the trigger to fire the barrels in the sequence in which they are loaded.

5. A gun having two barrels, a firing pin for each barrel, a sear for each firing pin, a single trigger yieldingly connected to both sears, and control means adapted to prevent movement of the trigger from being transmitted to both said sears simultaneously.

6. A gun having two barrels, a firing pin for each barrel, a sear for each firing pin, levers adapted to actuate each sear, a single trigger yieldingly connected to both said levers and means preventing simultaneous movement of both said levers.

7. A gun having two barrels, a firing pin for each barrel, a sear for each firing pin, levers adapted to actuate each sear, a single trigger connected to both said levers and means preventing movement of one of said levers, the connection between said levers and the trigger being adapted to yield and to permit the trigger to be moved to actuate the other lever.

8. A gun having two barrels, a firing pin for each barrel, a sear for each firing pin, an actuating lever for each sear, a single trigger, a lever connecting the trigger to each actuating lever, and a yielding connection between the trigger and the connecting levers.

9. A gun having two barrels, a firing pin

for each barrel, a sear for each firing pin, an actuating lever for each sear, a single trigger and a lever connecting the trigger to each actuating lever, the connecting lever being adapted to become disconnected from its actuating lever at substantially the moment the corresponding sear releases its firing pin.

10. A gun having two barrels, a movable breech block, a firing pin for each barrel, a sear for each firing pin, an actuating lever for each sear, and cams coacting with the actuating levers, the cams being so related as to prevent simultaneous movement of the two actuating levers.

11. A gun having two barrels, a movable breech block, a firing pin for each barrel, a sear for each firing pin, an actuating lever for each sear, and cams upon a single shaft coacting with the actuating levers, the cams being so related as to prevent simultaneous movement of the two actuating levers.

12. A gun having two barrels, a movable breech block, a firing pin for each barrel, a sear for each firing pin, an actuating lever for each sear, cams coacting with the actuating levers, the cams being so related as to prevent simultaneous movement of the two actuating levers, and means adapted to move said cams during movement of the breech block.

13. A gun having two barrels, a movable breech block, a firing pin for each barrel, a sear for each firing pin, an actuating lever for each sear, cams coacting with the actuating levers, the cams being so related as to prevent simultaneous movement of the two actuating levers, and means adapted to move said cams during the closing movement of the breech block.

14. A gun having two barrels, a movable breech block, a firing pin for each barrel, a sear for each firing pin, an actuating lever for each sear, and cams upon a single shaft coacting with the actuating levers, the cams being so related as to prevent simultaneous movement of the two actuating levers, and means adapted to rotate said cam shaft during the closing movement of the breech block.

15. A gun having two barrels, a firing pin for each barrel, a sear for each firing pin, an actuating lever for each sear, and rotating cams coacting with the actuating levers, each cam being adapted to prevent movement of its actuating lever during a portion of the rotation of the cam and to permit said movement during the remainder of its rotation.

16. A gun having two barrels, a firing pin for each barrel, a sear for each firing pin, an actuating lever for each sear, and rotating cams coacting with the actuating levers, each cam being adapted to prevent movement of its actuating lever during one half of the rotation of the cam and to permit said movement during the other half of its rotation.

17. A gun having two barrels, a firing pin for each barrel, a sear for each firing pin, an actuating lever for each sear, and rotating cams coacting with the actuating levers, each cam being adapted to prevent movement of its actuating lever during a portion of the rotation of the cam and to permit said movement during the remainder of its rotation, the cams being upon a single shaft and so spaced as to prevent simultaneous movement of the two actuating levers.

18. A gun having two barrels, a firing pin for each barrel, a sear for each firing pin, an actuating lever for each sear, a single trigger operatively connected to both actuating levers, and rotating cams coacting with the actuating levers, each cam being adapted to prevent movement of its actuating lever during a portion of the rotation of the cam and to permit said movement during the remainder of its rotation.

19. A gun having two barrels, a firing pin for each barrel, a sear for each firing pin, an actuating lever for each sear, a single trigger operatively connected to both actuating levers, and rotating cams coacting with the actuating levers, each cam being adapted to prevent movement of its actuating lever during a portion of the rotation of the cam and to permit said movement during the remainder of its rotation, the cams being upon a single shaft and so spaced as to prevent simultaneous movement of the two actuating levers.

20. A gun having two barrels, a firing pin for each barrel, a breech block, a single trigger operatively connected to both said firing pins, means comprising cams upon a shaft adapted to permit selective release of said firing pins, and coacting gears upon said breech block and the cam shaft adapted to rotate said shaft.

21. A gun having two barrels, a firing pin for each barrel, a breech block, a single trigger operatively connected to both said firing pins, means comprising cams upon a shaft adapted to permit selective release of said firing pins, and coacting gears upon said breech block and the cam shaft adapted to rotate said shaft, during the closing movement of the breech block.

22. A gun having two barrels, a firing pin for each barrel, a breech block, a single trigger operatively connected to both said firing pins, means comprising cams upon a shaft adapted to permit selective release of said firing pins, and coacting gears upon said breech block and the cam shaft adapted to rotate said shaft, the gear upon the breech block being resiliently pressed into engagement with the gear upon the cam shaft.

23. A gun having two barrels, a firing pin

for each barrel, a breech block, a single trigger operatively connected to both said firing pins, means comprising cams upon a shaft adapted to permit selective release of said firing pins, and coacting gears upon said breech block and the cam shaft adapted to rotate said shaft, the gear upon the breech block being connected thereto in a manner to permit a predetermined amount of lost motion between said block and gear.

24. A gun having two barrels, a firing pin for each barrel, a breech block, a single trigger operatively connected to both said firing pins, means comprising cams upon a shaft adapted to permit selective release of said firing pins, and coacting gears upon said breech block and the cam shaft adapted to rotate said shaft, the gears being so associated as to permit the gear upon the breech block to cause rotation of the cam shaft in only one direction.

25. A gun having two barrels, a firing pin for each barrel, a breech block, a single trigger operatively connected to both said firing pins, means comprising cams upon a shaft adapted to permit selective release of said firing pins, and coacting gears upon said breech block and the cam shaft adapted to rotate said shaft, the breech block gear being connected thereto by means of an elongated slot interfitting with a pivot upon the lower face of the breech block.

26. A gun having two barrels, a firing pin for each barrel, a breech block, a single trigger operatively connected to both said firing pins, means comprising cams upon a shaft adapted to permit selective release of said firing pins, and coacting gears upon said breech block and the cam shaft adapted to rotate said shaft, the breech block gear being connected thereto by means of an elongated slot interfitting with a pivot upon the lower face of the breech block, and the free end of the gear being normally resiliently urged away from the breech block.

27. In a gun, a breech block normally actuated by the discharge of the gun, a lock therefor, the lock having a cam surface thereon, and an actuator having a surface adapted to coact with the cam surface of the lock whereby pressure upon the actuator moves the lock to unlocked position, the actuator remaining stationary during normal operation of the breech block.

28. In an automatic gun, a breech block, a lock therefor, having surfaces inclined automatically to unlock the breech block after the breech pressure has decreased to a predetermined value, the lock having two cam surfaces thereon, an actuator having a surface adapted to coact with one of said cams and a firing pin having a surface adapted to coact with the other of said cams.

29. In a gun, a breech block, a lock therefor, the lock having two cam surfaces thereon, an actuator having a surface adapted to coact with one of said cams and a firing pin having a surface adapted to coact with the other of said cams, the lock serving to move the firing pin to cocked position during its unlocking movement.

30. In a gun, a breech block, a lock therefor, the lock having a cam surface thereon, and an actuator having a surface adapted to coact with the cam surface of the lock whereby pressure upon the actuator moves the lock to unlocked position, further pressure upon the actuator serving to move the breech block to open position.

31. In an automatic gun, a breech block having a bifurcated forward portion, a lock for said breech block having locking surfaces inclined automatically to unlock the breech block when the breech pressure decreases below a predetermined value, and an actuator operating between the bifurcated forward members and coöperating with the lock to move it to unlocked position.

32. In a gun, a breech block normally actuated by the discharge of the gun, having a bifurcated forward portion, a lock for said breech block and an actuator operating between the bifurcated forward members and coöperating with the lock to move it to unlocked position, the actuator remaining stationary during normal operation of the breech block.

33. In a gun, a receiver, a breech block having a bifurcated forward portion, a lock adapted to lock the breech block to the receiver and having a portion extending across the breech block, an actuator situated between the bifurcated forward portions of the breech block and having a cam surface adapted to coöperate with the cross portion of the lock to move the lock member to unlocked position.

34. In a gun, a receiver, a breech block having a bifurcated forward portion, a lock adapted to lock the breech block to the receiver and having a portion extending across the breech block, a firing pin in each bifurcated forward portion, the firing pins having a portion adapted to coöperate with the cross portion of the lock whereby the firing pins will be moved to cocked position by the unlocking movement of the lock.

35. In a gun, a receiver, a breech block having a bifurcated forward portion, a lock adapted to lock the breech block to the receiver and having a portion extending across the breech block, a firing pin in each bifurcated forward portion, the firing pins having a portion adapted to coöperate with the cross portion of the lock whereby the firing pins will be moved to cocked position by the unlocking movement of the lock, and an actuator situated between the bifurcated forward members and adapted to move the lock member to unlocked position.

36. In a gun, a receiver, a breech block having a bifurcated forward portion, a lock adapted to lock the breech block to the receiver and having a portion extending across the breech block, a firing pin in each bifurcated forward portion, the firing pins having a portion adapted to coöperate with the cross portion of the lock whereby the firing pins will be moved to cocked position by the unlocking movement of the lock, and an actuator situated between the bifurcated forward members and adapted to move the lock member to unlocked position by coöperation with the cross member thereof.

37. In a gun, a receiver, a breech block having a bifurcated forward portion, a lock adapted to lock the breech block to the receiver and having a portion extending across the breech block, a firing pin in each bifurcated forward portion, the firing pins having a portion adapted to coöperate with the cross portion of the lock whereby the firing pins will be moved to cocked position by the unlocking movement of the lock, and an actuator situated between the bifurcated forward members and adapted to move the lock member to unlocked position, (further pressure upon the actuator serving to move the breech block to open position.)

38. In a gun, having a plurality of barrels, a loading spoon for each barrel, lift levers connected to the spoons, said levers having actuating extensions, and a movable breech block having spring pressed cams adapted to coact with the actuating extensions during the movement of the breech block.

39. In a gun, having a plurality of barrels, a loading spoon for each barrel, lift levers connected to the spoons, said levers having actuating extensions, a movable breech block having spring pressed cams adapted to coact with the actuating extensions during the movement of the breech block and lock cams adapted to coact with the actuating extensions to prevent simultaneous movement thereof.

40. In a gun, having a plurality of barrels, a loading spoon for each barrel, lift levers connected to the spoons, said levers having actuating extensions, a movable breech block having spring pressed cams adapted to coact with the actuating extensions during the movement of the breech block and movable lock cams for said actuating extensions adapted when moved in contact with the extension to prevent movement thereof.

41. In a gun, having a plurality of barrels, a loading spoon for each barrel, lift levers connected to the spoons, said levers having actuating extensions, a movable breech block having spring pressed cams adapted to coact with the actuating extensions during the movement of the breech block and rotatable lock cams for said actuating extensions adapted when moved in contact with the extension to prevent movement thereof, said lock cams being upon a single shaft.

42. In a gun, having a plurality of barrels, a loading spoon for each barrel, lift levers connected to the spoons, said levers having actuating extensions, a movable breech block having spring pressed cams adapted to coact with the actuating extensions during the movement of the breech block and rotatable lock cams for said actuating extensions adapted when moved in contact with the extension to prevent movement thereof, said lock cams being upon a single shaft, said shaft being operatively connected to said breech block whereby said shaft is rotated during the movement of the block.

Signed by me at New Canaan, Connecticut, this 9th day of April, 1920.

JOHN T. THOMPSON.