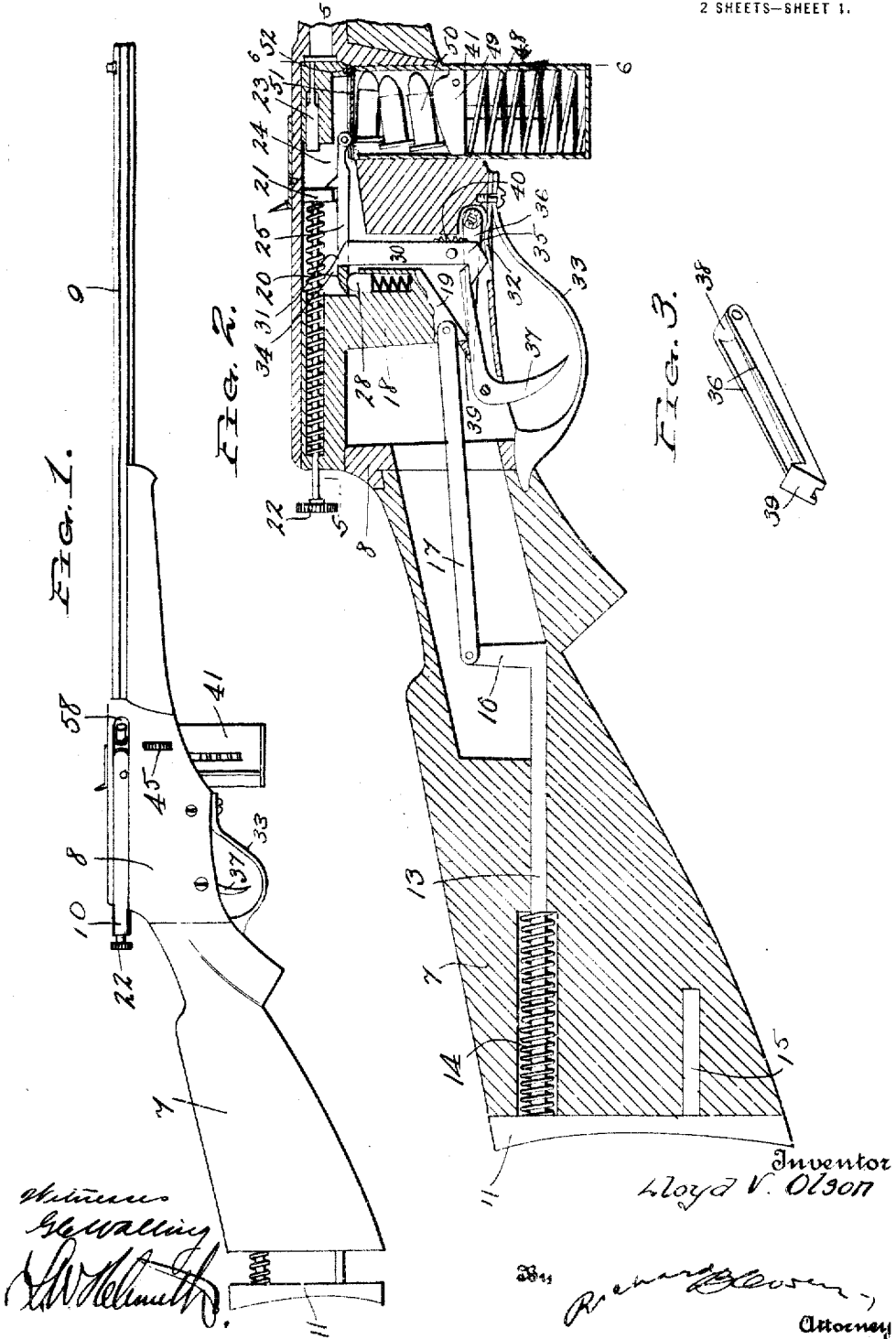


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REPEATING FIREARM.
APPLICATION FILED JUNE 18, 1919.

1,355,252.

Patented Oct. 12, 1920.

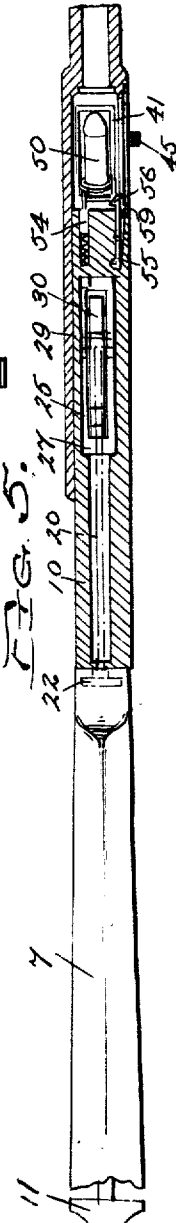
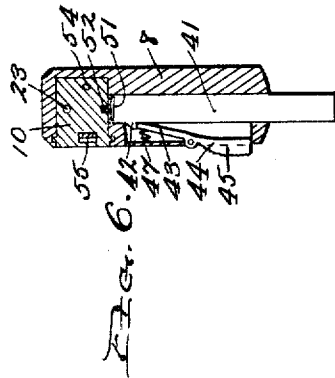
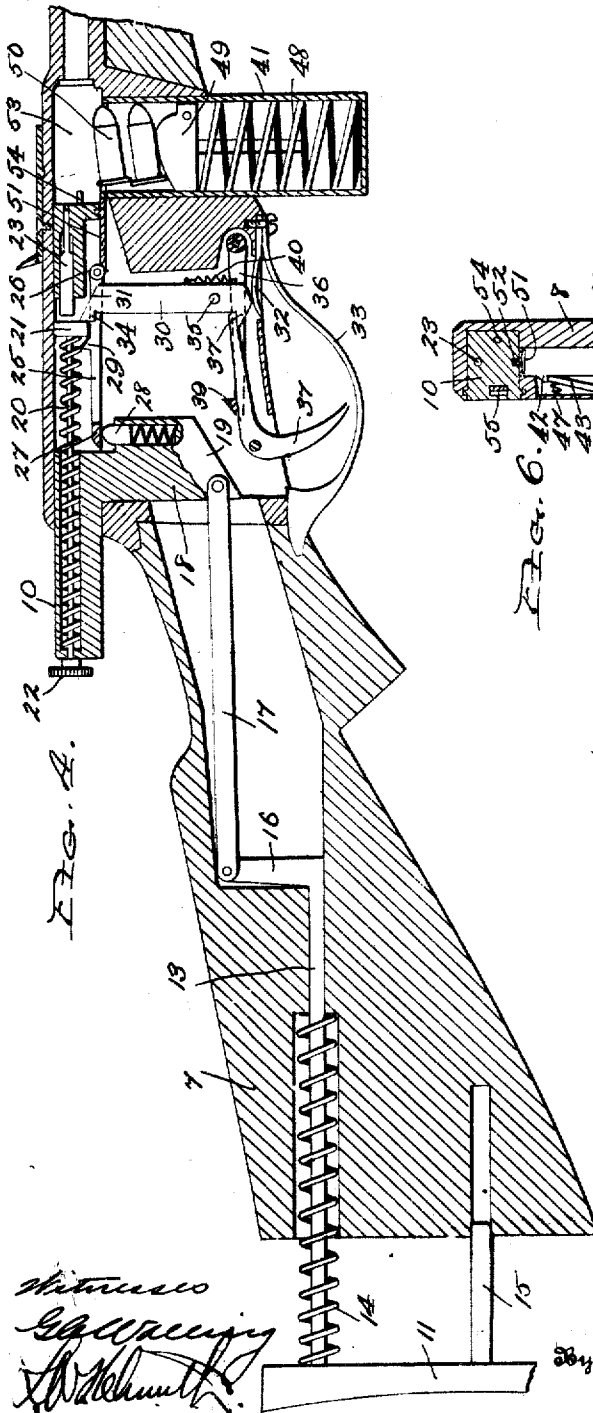
2 SHEETS—SHEET 1.



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 2 SHEETS—SHEET 2.



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LLOYD V. OLSON, OF CLYDE, KANSAS.

REPEATING FIREARM.

1,355,252.

Specification of Letters Patent.

Patented Oct. 12, 1920.

Application filed June 18, 1919. Serial No. 305,056.

To all whom it may concern:

Be it known that I, LLOYD V. OLSON, a citizen of the United States, residing at Clyde, in the county of Washington and State of Kansas, have invented certain new and useful Improvements in Repeating Firearms, of which the following is a specification.

My invention relates to new and useful improvements in automatic repeating fire arms, and more particularly to the type employing a reciprocatory breech block and firing bolt, the reciprocatory movements of which are controlled by the action of the trigger.

An important object of my invention resides in the provision of means carried by the butt of the fire arm and governed by the trigger for causing the fire arm to reload and at the same time retract the firing bolt to a position in readiness to fire again.

Another object of my invention resides in the provision of means for preventing accidental discharge of the fire arm, should by accident the firing bolt become disengaged from its retaining element.

A still further object of the invention resides in the provision of means actuated by the breech block for permitting a cartridge from the magazine to be positioned within the barrel when the cartridge chamber is empty.

A still further object of my invention resides in the provision of means for discharging the used shell from the barrel during the retraction of the breech block.

Other objects and advantages of the invention will become apparent during the course of the following description.

In the accompanying drawings, forming a part of the description, and wherein like numerals are employed to designate like parts throughout the same,

Figure 1 is a side elevation of a fire arm to which my invention is applied, and is illustrated in the act of discharging a used shell.

Fig. 2 is an enlarged longitudinal vertical section through the rear of a rifle showing the same in condition ready to be fired.

Fig. 3 is an enlarged perspective view of the breech block retaining catch.

Fig. 4 is a longitudinal vertical section through the rear end of a rifle, illustrating the breech block recoiled whereby a car-

tridge may be admitted to the cartridge chamber.

Fig. 5 is a longitudinal transverse section taken on the line 5—5 of Fig. 2, and

Fig. 6 is a transverse section taken on the line 6—6 of Fig. 2.

In the drawings, wherein is illustrated a preferred embodiment of my invention, the numeral 7 designates the butt stock of a rifle, the numeral 8 the frame, 9 the barrel, and 10 the breech block. The butt 7 and frame 8 are suitably chambered to receive the various parts of the invention, and their relative positions with relation to the various parts of the rifle will be described during the course of the description.

A reciprocatory plate 11 is mounted upon the end of the butt 7 and accordingly forms a shoulder plate. This plate 11 is provided with a stem 13 which extends longitudinally through the butt of the rifle toward the frame thereof. A spring 14 is mounted upon the stem 13 so that one end of the spring abuts against a wall in the butt while its opposite end abuts against the butt plate 11 to normally force the plate 11 from the end of the butt. In order that the butt plate may reciprocate freely and properly, a guide pin 15 is secured thereto and operates in a suitable opening in the butt. The inner end 16 of the stem 13 extends at an angle to be pivotally connected to one end of a connecting rod 17, and the other end of the connecting rod is pivotally connected to a depending breech block leg 18. The lower end 19 of the leg 18 is inclined upwardly and forwardly for a purpose which will hereinafter appear.

The breech block carries a spring pressed firing bolt 20, the inner end of which is provided with an enlarged head 21, and the outer end is provided with a suitable finger grip 22. The forward end of the breech block is provided with a firing pin 23 and a suitable recess 24, in which is pivoted a sear. The sear is provided with a longitudinally extending slot therein, and one end of this sear is pivoted to the breech block adjacent the forward end thereof, while the opposite end 27 is adapted for engagement with a spring pressed member 28 mounted within the depending leg 18 of the breech block and normally retains the sear 25 in a substantially horizontal position. Upstanding inclined lugs 29 are formed upon the

sear 25 intermediate its ends, one on each side of the slot therein.

Referring to Fig. 2 of the drawings, the release element 30 is slidably mounted in the forward end of the chambered portion of the frame and its upper end extends through the longitudinally extending slot in the sear 25. The upper end of this release element is inclined upwardly and rearwardly whereby the bolt head 21 may pass this end of the release element and be retained in a retracted position. A flat spring 32 has one end secured between the stock of the rifle and the trigger guard 33 so that its free end engages the lower end of the released element 30. A shoulder 34 is provided in the upper end of the release element for engagement with the end 27 of the sear whereby the release element may swing the sear 25 downwardly to release the firing bolt. In order that the release element may assist in the retraction of the breech block, a pin 35 is arranged transversely through the release element 30 adjacent its lower end. The lower end of the release 30 is passed between the arms 36 of a breech block retaining catch, which is more clearly illustrated in Fig. 3 of the drawings, and the lower end of the release element is provided with a shoulder 37 for engagement with a trigger 38. The forward end of the breech block retaining catch is pivotally mounted in the forward end of the frame, while its rear end 39 is provided with an upstanding lug, which is normally engaged with the lower end of the leg 18 of the breech block. A spring 40 is secured within the frame and secured to the breech block retaining catch 36 so as to retain said catch in such position that the lug 39 thereon will engage with the leg 18 of the breech block. As clearly shown in Figs. 2 and 4 of the drawings, the upper end of the trigger 38 extends between the arms 36 of the breech block retaining catch to engage with the shoulder 37 on the release element 30.

When the breech block is in a position to fire the gun, and the firing pin has been actuated to discharge the cartridge, in order to reload the rifle, the trigger is actuated in the same direction as to fire the rifle, but a substantial distance farther so that through its engagement with the release element 30, the release element will be moved downwardly against the tension of the spring 32. After the release element has traveled a substantial distance downwardly, the pin 35 thereon engages with the breech block retaining catch 36 to swing downwardly whereby the lug 39 thereon is disengaged from the breech leg 18 so that the butt plate 11 and the breech block will be moved rearwardly of the rifle. By reason of the sear 25 being carried by the breech block and provided with the lugs 29, during the rear-

ward movement of the breech block, the firing bolt will of course be carried rearwardly also until the enlarged head 21 of the firing bolt engages with the inclined end 31 of the release element 30, which action will cause the release member to move slightly downwardly to permit the passage of this enlarged head of the firing bolt. Then, after the head of the firing bolt has passed over the inclined head 31, the release member will immediately spring up into its normal position to engage with the forward end of the firing bolt head to prevent forward movement of the same. After the new cartridge has been forced into the breech chamber of the rifle the rifle is retained against the shoulder of the marksman and drawn toward him until the butt plate 11 is forced into engagement with the rear end of the butt. This action will of course move the breech block forward into its closed position and causes the coiled spring on the firing bolt to be compressed by reason of the inability of the firing bolt to move forwardly with the breech block since it is engaged with the shoulder 34 of the release element 30. During the forward movement of the breech block, the inclined end 19 of the leg 18 will engage the inclined end of the lug 39 so as to force the breech block retaining catch downwardly sufficiently for the lug 39 to engage the lower end of the leg 18 and retain the breech block in its closed position. Since the sear 25 is pivotally connected to the breech block, it too, will move forwardly with the breech block and the lugs 29 thereon will slide under the head 21 of the firing bolt, since the sear 25 will be permitted to swing downwardly by depressing the spring pressed member 28 carried by the leg 18 of the breech block. As more clearly shown in Fig. 2 of the drawings, when the breech block is closed, the shoulder 34 of the release element will engage with the end 27 of the sear 25 so that when the release element moves downwardly it will swing the sear downwardly sufficiently for the lugs 29 to permit the unrestricted forward movement of the firing bolt so that it will contact with the firing pin 23 to discharge the cartridge.

In order that a new cartridge may be supplied to the barrel of the rifle as soon as the exploded shell has been removed therefrom, I provide a magazine 41 which is detachably retained in the frame of the rifle. I provide a lug 42 on the side of the magazine for engagement with the inner inclosed end 43 of a magazine release 44 having pivotal connection intermediate its ends with the frame of the rifle. The exposed end 45 of the release 44 is urged through a slot 46 in the frame as more clearly shown in Fig. 1 a coil spring 47 exerting a pressure upon the concealed end 43 of the magazine release.

A spring 48 in the magazine is adapted to urge the usual platform toward the mouth of the magazine for expelling the cartridges indicated by the numeral 50. As more clearly shown in Fig. 6 the upper portion of the magazine 41 is provided with a sliding cover 51, which cover governs the release of a single cartridge at a time, from the magazine. In order that the cover may travel with the breech block, it is provided with an upstanding lug 52 which fits in a suitable recess in the breech block. As shown in Fig. 2 of the drawings, the cover 51 of the magazine is closed upon the top of the magazine and retains the cartridges within the magazine under the tension of the coil spring therein. Accordingly, when the breech block moves rearwardly it carries with it the cover 51 and accordingly the top cartridge in the magazine will be permitted to enter the cartridge chamber 53.

The means I provide for throwing out the used shells from the barrel and cartridge chamber 53, is carried by the forward end of the breech block. This means as more clearly shown in Fig. 5 of the drawings consists of a spring pressed plunger 54 extending forwardly of the breech block and normally protruding from the forward end thereof. The coacting element of the cartridge expelling means is in the form of a spring pressed catch pivoted at its inner end to the breech block in such a manner that the forward hooked end 56 of the catch is normally urged inwardly for engagement with the flange of a cartridge. From this, it will be clearly evident that when the top cartridge in the magazine is permitted to travel into the cartridge chamber 53, and the breech block moves forwardly, the plunger 54 and catch 55 will engage the end of the cartridge and force it into the barrel of the rifle. When the cartridge has been placed within the barrel, the spring pressed plunger 54 will be forced within the breech block, while the pivoted spring pressed catch 55 will be swung outwardly so that the hooked end 56 thereof will hook or catch over the flange of the cartridge. After the cartridge has been discharged, and the breech block moves rearwardly of the rifle, it will carry with it the used shell. The tendency of the plunger 54 and the spring catch 55 is to cast the used shell to one side of the rifle, but while the used shell engages with the bore through the barrel, it will be prevented from being moved in this direction until after the shell disengages from the bore through the barrel, then it will be cast out from the side of the rifle through the opening 58 by the plunger 54.

The foregoing description and the drawings have reference to what may be considered the preferred, or approved, form of invention. It is to be understood that I may

make such changes in construction and arrangement and combination of parts, materials, dimensions, etc., as may prove expedient and fall within the scope of the appended claims.

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

1. In a repeating fire arm, the combination with a breech block and a trigger, of means for releasing and retracting said breech block by further movement of said trigger after the fire arm has been discharged.

2. In a repeating fire arm, the combination with a reciprocatory breech block, a trigger, a reciprocatory butt plate, means connecting said butt plate with said breech block, a breech block check pivotally connected to the fire arm frame and engaging said breech block, whereby actuation of said trigger disengages said breech block check from said breech block to permit the butt plate and breech block to move rearwardly of the fire arm.

3. In a repeating fire arm, the combination with a movable breech block having a firing bolt mounted therein, a trigger for operating said bolt, of a butt plate for controlling said breech block, a breech block check for retaining said breech block and butt plate in a closed position, and means for governing said firing bolt and breech block check and operable by said trigger.

4. In a repeating fire arm, the combination with a movable breech block having a firing bolt mounted therein, a trigger for actuating said bolt, of a butt plate normally urging said breech block to a retracted position, a breech block check pivotally mounted in the fire arm frame and normally retaining said breech block in a closed position, and a slidable release element for governing said firing bolt and having means thereon for engagement with the breech block check whereby when the trigger is actuated, the butt plate causes retraction of the breech block.

5. In a repeating fire arm, the combination with a movable breech block, having a firing bolt therein, a sear pivotally connected to the breech block, a trigger for releasing said firing bolt, of a butt plate normally urged rearwardly of the fire arm for retracting said breech block, checking means for preventing retraction of said breech block, and means operable by said trigger and engaging said checking means and sear for governing the movement of said firing bolt and said butt plate.

6. In a repeating fire arm, the combination with a reciprocatory breech block having a spring pressed firing bolt mounted therein and a trigger for controlling said bolt, of means for retracting said breech

block, a breech block check for retaining said breech block in a closed position, said breech block check having a slot therein, a slidable element for engagement with said firing
5 bolt having its lower end operating through the slot in said breech block check, said slidable element having connection with said trigger, and an abutment carried by said slidable element for engagement with said
10 breech block check for actuating the same to release and cause rearward movement of said breech block.

7. In a fire arm, the combination with a movable firing bolt, a trigger, a movable
15 element operated by the trigger and engaging the firing bolt to maintain the same in a retracted position, of a sear actuated by said movable element, and said sear having means thereon for preventing complete forward
20 movement of the firing bolt when the trigger

is accidentally manipulated, but said means permitting complete forward movement of the firing bolt when the trigger is positively engaged.

8. A fire arm including a movable firing 25 bolt, a trigger, a sear, said sear having means thereon for preventing complete forward movement of the firing bolt when the trigger is not positively engaged, and a movable element actuated by said trigger and having 30 one end extended through said sear and engaging the bolt and the sear when the bolt is retracted.

In testimony whereof I affix my signature in presence of two witnesses.

LLOYD V. OLSON.

Witnesses:

HENRY G. OLSON,
C. A. BAIRD.