C. G. SWEBILIUS & H. T. R. HANITZ.

REPEATING FIREARM.

APPLICATION FILED MAY 27, 1913.

1,090,351.

Patented Mar. 17, 1914.

3 SHEETS—SHEET 1.

Fig. 1.

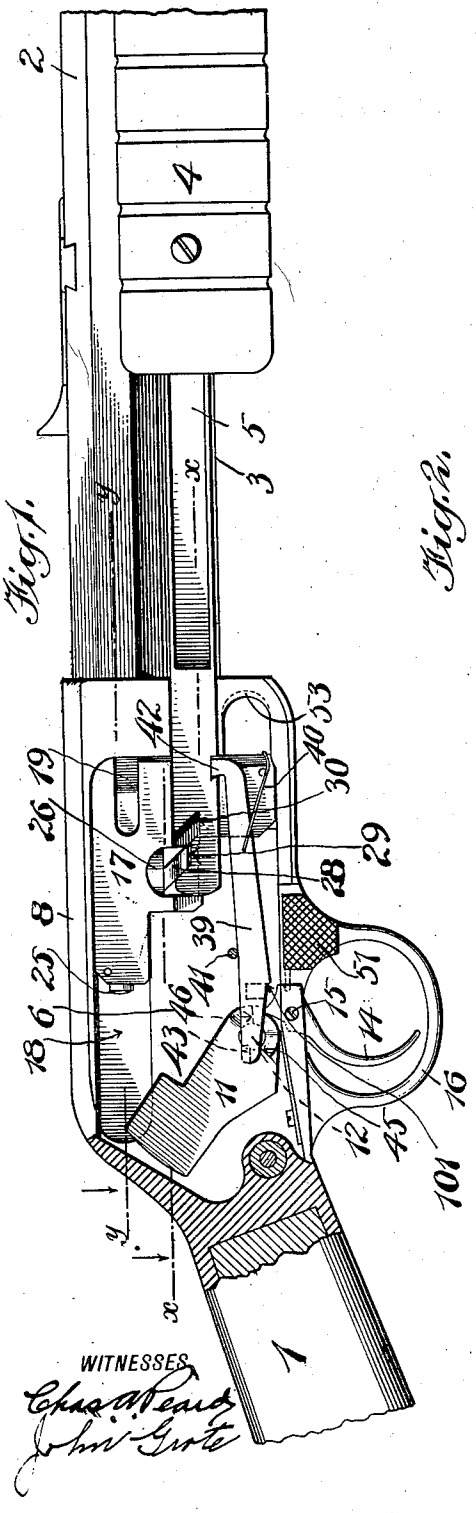
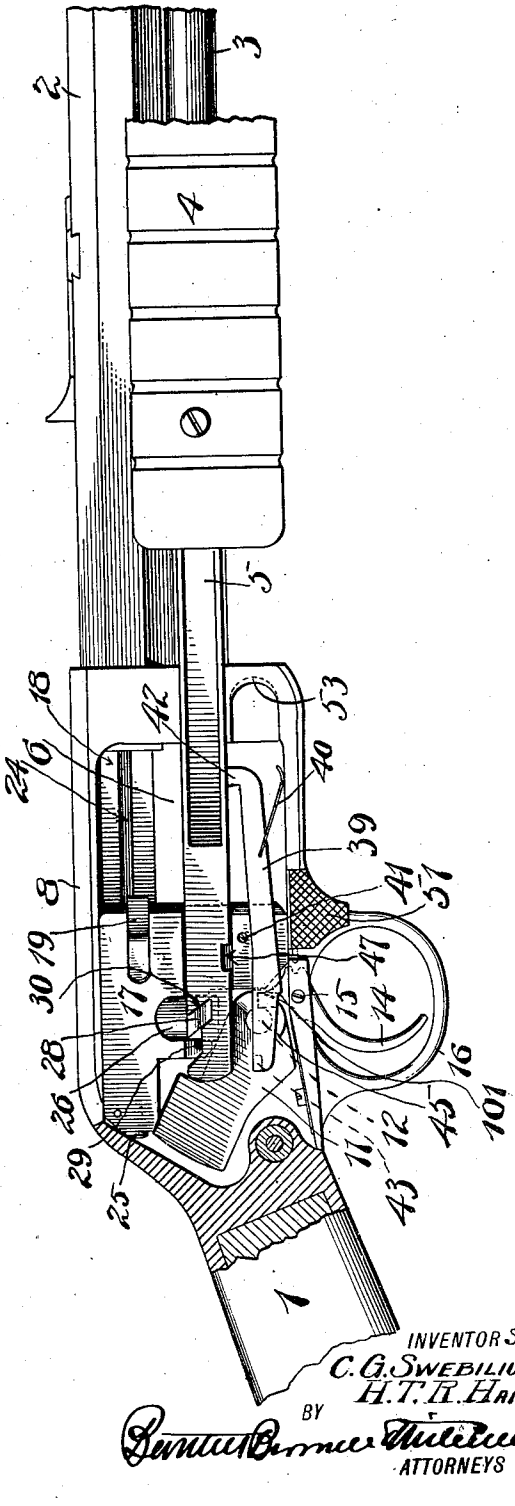


Fig. 2.



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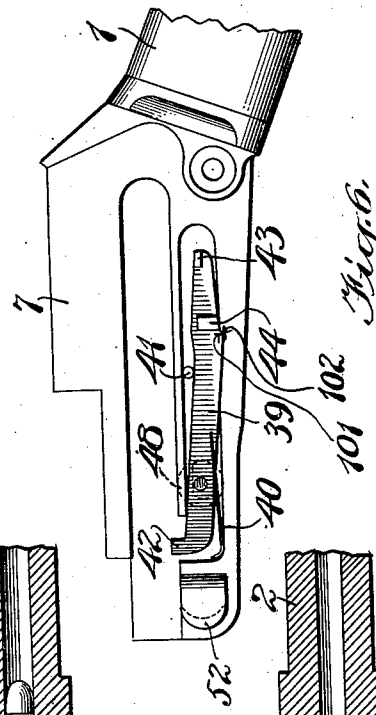


Fig. 6.

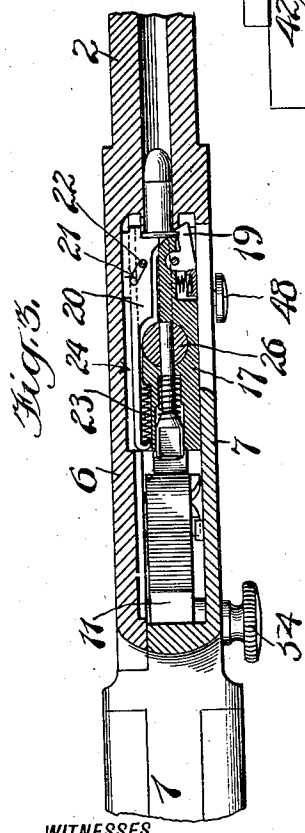


Fig. 3.

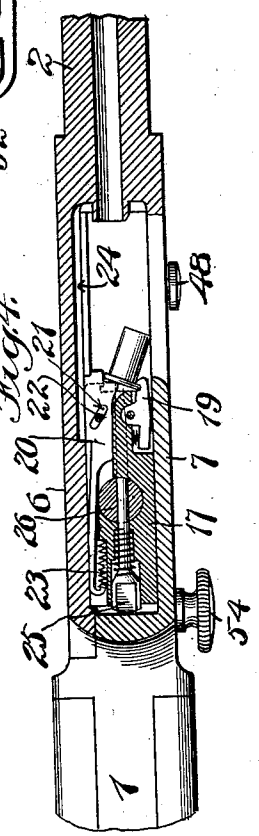


Fig. 4.

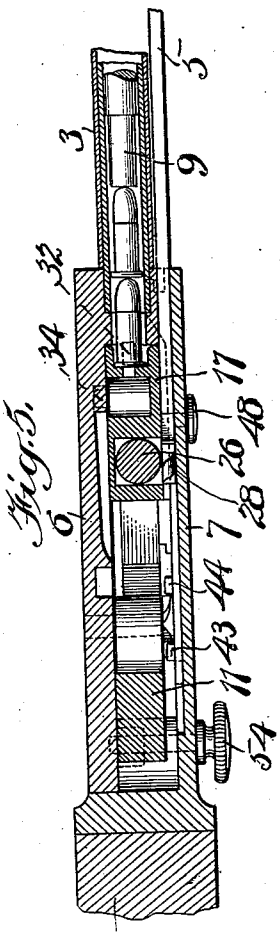


Fig. 5.

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3 SHEETS—SHEET 3.

Fig. 11.

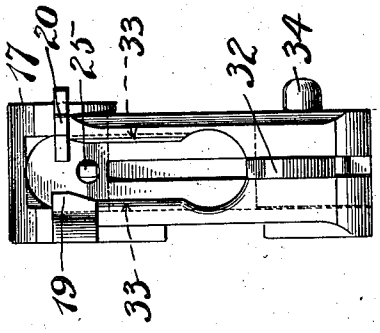


Fig. 12.

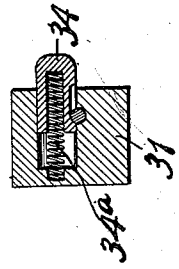


Fig. 7.

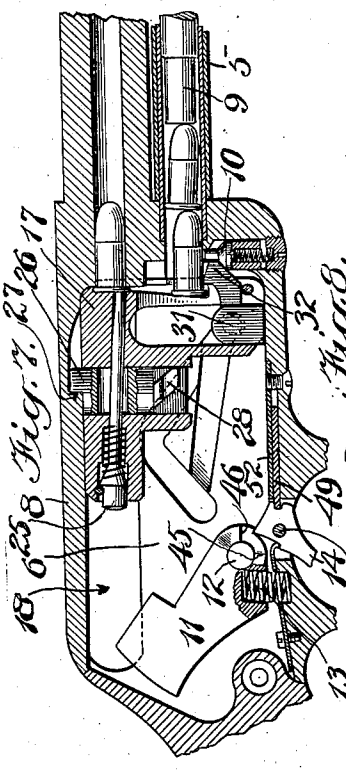


Fig. 8.

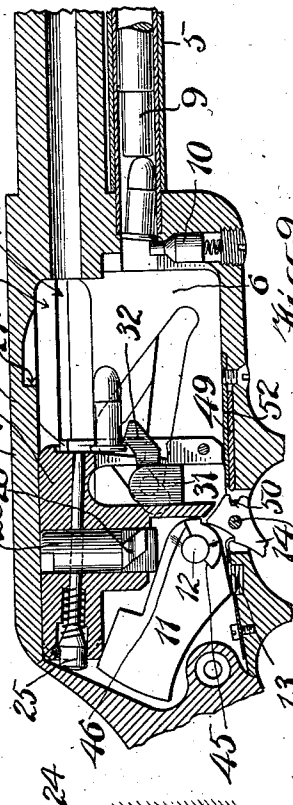


Fig. 9.

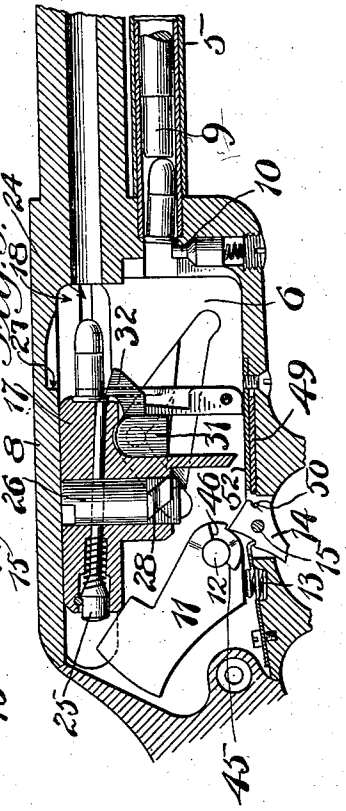
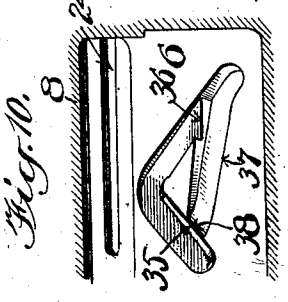


Fig. 10.



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CARL G. SWEBILIUS AND HANS T. R. HANITZ, OF NEW HAVEN, CONNECTICUT, ASSIGNORS TO THE MARLIN FIREARMS COMPANY, OF NEW HAVEN, CONNECTICUT, A CORPORATION OF CONNECTICUT.

REPEATING FIREARM.

1,090,351. Specification of Letters Patent. **Patented Mar. 17, 1914.**

Application filed May 27, 1913. Serial No. 770,124.

To all whom it may concern:

Be it known that we, CARL G. SWEBILIUS and HANS T. R. HANITZ, respectively a citizen of the United States and a subject of the Emperor of Germany, residing at New Haven, county of New Haven, State of Connecticut, have invented certain new and useful Improvements in Repeating Firearms, of which the following is a full, clear, and exact description.

This invention relates to improvements in magazine repeating firearms.

The main objects of the invention are to secure simplicity of construction and durability and effectiveness of action.

In the accompanying drawings, Figure 1 is a side elevation of our improved firearm with one side of the receiver removed to show the internal construction, the breech block being closed. Fig. 2 is a similar view, the breech block being opened. Fig. 3 is a horizontal section on the line *y—y* of Fig. 1. Fig. 4 is a horizontal section on the plane of the same section line, with the breech block retracted. Fig. 5 is a horizontal section on the plane of the line *x—x*, Fig. 1. Fig. 6 is a view of the inner side of that part of the side of the receiver which is removed from Figs. 1 and 2. Figs. 7, 8 and 9 are vertical sectional views, all similar, but showing the various parts of the action mechanism in different positions. Fig. 10 is a perspective view of the inner side of one of the side plates showing the construction of the cam groove therein. Fig. 11 is a relatively enlarged view of the front end of the breech block and associated parts. Fig. 12 is a sectional detail view of part of the cartridge carrier.

In the drawings we have shown our invention as applied to a "take-down" magazine firearm in which the line of division between the stock and the barrel occurs at the receiver, said receiver being divided longitudinal and vertically so that one side plate of the receiver will be carried rigidly by the barrel and the other by the stock. The magazine in this instance is a tube arranged underneath the barrel, and the breech mechanism is operated by a reciprocating action rod and handle. The firearm is also of the "hammerless" variety.

It will be apparent that while we have shown the invention in connection with a gun possessing the aforesaid characteristics, in many respects said invention and the different features thereof may be embodied in guns possessing different characteristics.

1 represents the stock.

2 represents the barrel.

3 represents the magazine.

4 represents a handle slidable underneath the barrel and connected with a reciprocating action rod 5 which projects back into the receiver.

6 represents one of the side plates rigidly carried by the barrel.

7 represents the opposite side plate rigidly carried by the stock.

8 represents an overhanging top plate rigidly carried by the side plate 6. Part of the upper edge of the side plate 7 is spaced away from the overhanging top plate 8 to form an opening through which the empty shells are ejected.

9 is the usual follower arranged to press the cartridges in the magazine rearwardly against a spring pressed cut-off 10, the latter being operated in the manner hereinafter described to release the cartridges, whereupon they will be fed, one by one, into the receiver. The magazine may be filled with cartridges in the usual manner.

11 is a hammer mounted on a pivot stud 12 carried by the side plate 6.

13 is a hammer spring, in this instance in the form of a coil spring, one end of which is mounted in a recess in the back of the hammer near the pivot stud, the other end being mounted in a recess in the lower part of the receiver. The expansion of this spring forces the hammer ahead, and by using a coil spring, the same readily conforms to the change in the angle of the hammer as it advances from the cocked position to the firing position.

14 is a trigger mounted on the pivot stud 15 in the lower part of the receiver, said lower part of the receiver being rigidly attached to the side plate 6 and being provided with a trigger guard 16.

17 is a reciprocating breech block arranged to slide to and fro within the receiver, there being a suitable guide-way

groove 18 formed in the side plate 6 to guarantee the accurate sliding movement of the breech block to and fro.

The breech block carries at its front end the usual spring pressed extractor hook 19, said hook being located adjacent the outer side of said breech block in a suitable groove. At the opposite side of said breech block is located the ejector 20 which has a peculiar movement best adapted to effectively eject the empty shells. As shown, the ejector is arranged in a groove and is movable to and fro, but the movement is in an oblique direction relatively to the line of travel of the breech block. This oblique movement is effected by means of an oblique cam groove 21 through which passes a pin 22.

23 is a retractor spring for the ejector 20. When the ejector is fully retracted, the pin 22 will stand at or near the front end of the groove 21. When the ejector is projected forwardly relatively to the breech block the pin 22 will be located at or near the rear of the groove 21, and as the ejector is operated, it will cause the same to partake of an oblique movement so as to follow substantially the rim of the cartridge as it turns in the extractor hook 19, thereby imparting to the cartridge a forceful, twisting, ejecting movement for a substantial period of time so as to guarantee a certain and effective expulsion of the discharged shell in the direction shown in Fig. 4. The outside of the ejector 20 has an offset shoulder which moves in a groove 24 in the side plate 6. When the breech-block has nearly reached the end of its rearward excursion, this shoulder encounters the shoulder at the rear end of the groove 24 and is checked from further rearward movement, hence, as the breech-block continues to move rearwardly, there is a relatively forward movement of the ejector which results in expelling the discharged shell. When the breech block is advanced, the ejector returns under the action of spring 23 to its normal position in which its nose stands in the proper position opposite the hooked end of the extractor 18 to engage another cartridge, after the manner shown in Figs. 7 and 9, and hold it while it is being fed into the chamber of the barrel, discharged and removed therefrom.

25 is a spring retracted firing pin which is arranged in the breech block, the rear end being exposed to the hammer 11 in the usual manner, the forward end being arranged to engage with part of the cartridge which it is desired to strike when the latter is to be discharged.

26 represents the locking bolt, the same being mounted in the breech block to move up and down, the upper end of the locking bolt being arranged to engage a locking shoulder or abutment 27 on the under side of the top plate 8, as shown in Fig. 7. The lower part of the locking bolt is provided with a lateral offset 28 which has its front and rear bearing surfaces preferably beveled in a forward and downward direction whereby the same may be engaged by the rear end of the action rod which is provided with a notch forming a stepped incline or cam, as best seen in Fig. 2, so that the final forward movement of the action rod 5 will actuate the locking bolt to throw it up into the locking position shown in Figs. 1 and 7 wherein the locking bolt stands with the lateral offset 28 resting upon the ledge 29 so that the bolt will be positively held in the elevated, or breech-block locking, position. When the action rod 5 is retracted from this position, the first slight movement will be free, and then the cam incline 30 will engage the offset 28 and will first pull down the locking bolt, disengaging it from the abutment shoulder 27 and thus unlocking the breech-block. Further rearward movement of the action rod 5 will force the breech-block and the locking bolt bodily back, the rearward movement of the breech-block cocking the hammer 11.

The cartridge carrier is indicated at 31 and comprises a block which moves up and down in a guide-way in the forward part of the breech-block, which latter has a suitable depending forward portion in which said guide-way is formed. The cartridge carrier has a forwardly projecting upwardly hooked nose 32 having an inclined upper as well as an inclined lower surface. The upper incline is designed to receive the rearmost cartridge in the magazine to guide it rearwardly into the position shown in Fig. 7. The lower incline is designed to engage the cut-off 10 when the breech block is fully advanced to depress said cut-off and release the rearmost cartridge to permit it to move into position on top of the hooked nose 32 of the carrier. In the front end of the breech block there is an ascending guide groove undercut at 33—33, Fig. 11, to receive the flange of the cartridge to properly hold it as it is being guided up to position in the rear of the barrel where it is engaged by the ejector and extractor. The movement of the carrier is effected by means of a cam, Fig. 10. This cam is formed by a groove having an upper path of arched design and a lower return path, both paths meeting at the ends. The forward path is deepest at the rear end and shallows up toward the forward end until it reaches a drop-off shoulder 36 adjacent the deep end of the return path. The return path shallows up at its rear end until it reaches a drop-off shoulder 38 adjacent the deep end of the forward upper path.

34 is a spring stud in the side of the car-

rier projecting into the cam groove. As the action mechanism is moved from the position shown in Fig. 7 to that shown in Fig. 8, the spring stud 34 rides along in the lower path and is slightly elevated by the incline 37 (Fig. 10). As this lower path shallows up, the spring stud 34 is repressed until finally it drops over the shoulder 38 into the deep end of the forward upper path, said drop-off occurring when the parts assume approximately the position shown in Fig. 8. The advance movement of the action mechanism causes the stud to ride up the incline 35 following the course of the upper arched path of the cam groove, which causes the carrier to quickly ascend to the position shown in Fig. 9, carrying the cartridge up through the guide groove in the front of the breech block and into position where it is engaged by the extractor and ejector. The carrier then descends by reason of the stud following the descending part of the upper path until the action mechanism reaches approximately its forward position where the stud 34 drops over the drop-off shoulder 36 into the deep end of the lower path. On this last part of the forward movement, the said cartridge is fed into the bore of the barrel and the locking bolt is actuated to lock the breech so that the parts will assume the position shown in Fig. 7. The stud is influenced by a spring 34^a. The drop-off shoulders 36 and 38 form abutments which prevent the stud from following any other course in the cam groove than that described. As the stud 34 moves around the course of the cam groove, the carrier will be alternately elevated and depressed, the movement thereof being timed by the shape of the cam groove so as to coöperate properly with the other parts of the action mechanism.

It is obvious that for safety's sake some means must be provided to prevent the accidental discharge of the firearm until the breech block is "locked up". To that end we provide a simple and effective safety locking means, automatic in action. This safety locking means comprises a safety bar 39 which is carried in a recess in the inner side of the side plate 7 (see Fig. 6). This recess is so shaped and the bar is so arranged therein that it partakes of both a longitudinal and a tilting movement. The forward end of the safety bar 39 is normally spring pressed upwardly by a spring 40.

41 is a fulcrum on the plate 7 above the bar upon which the latter may tilt or rock at the proper time. The forward end of the safety bar 39 is provided with an upwardly projecting nose 42, while the rear end of the bar is provided with a laterally projecting nose 43. 44 is a laterally projecting nose at the same side of the bar 39 between the ends thereof but nearer the rear end. The upwardly projecting nose 42 is designed to coact with the action rod 5. The safety bar coacts with the hammer to prevent the same from descending from its cocked position until the gun is fully locked, even though in the meantime the trigger is pulled. It also coacts with the action bar so that the handle 4 cannot be pulled rearwardly to unlock the gun when the hammer is cocked and after the breech block is locked up with a cartridge in the barrel.

When the gun is fully locked, the pulling of the trigger will release the hammer to discharge the shell and this movement of the hammer will (by means of the safety bar) release the action rod immediately after the shell is discharged. On the hub of the hammer are two abutment shoulders. One of the shoulders 45 is at the rear of the pivot point of the hammer and faces upwardly. The other shoulder 46 is forward of the pivot point of the hammer and faces downwardly. These shoulders 45—46 coact with the lateral noses 43—44 on the safety bar. When the parts stand as shown in Fig. 1, it will be observed that the nose 43 on the safety bar stands above the upwardly facing shoulder 45 on the hammer. In this position, the nose 42 on the safety bar projects into a notch 47 in the under side of the action rod 5. In this position the gun is fully locked, for as will be seen from reference to Fig. 6, the lower side of the safety bar is provided with a depending nose 101 which engages against a fixed shoulder 102 formed by recessing the side plate 7 to provide room for the nose 101 to enter and engage the shoulder 102 when the safety bar stands in the position shown in Fig. 6. If the trigger 14 is now pulled, the hammer is released and springs forwardly, striking against the firing pin to discharge the shell in the bore of the barrel. When the hammer has about descended and hit the firing pin, the upwardly facing shoulder 45 on the hammer hub engages the nose 43 on the safety bar and tilts the bar on its fulcrum 41 so as to withdraw the nose 42 from the notch 47 in the action rod 5, simultaneously disengaging nose 101 from the shoulder 102. This releases the action rod so that it may be pulled rearwardly to unlock the breech block in the manner previously described and to shift the same rearwardly to the position indicated in Fig. 2, thereby causing the empty shell to be withdrawn and ejected and simultaneously cocking the hammer. This movement of the breech block swings the hammer somewhat back of its cocked position so that the downwardly facing shoulder 46 on the hammer hub will stand just above the upper end of the laterally projecting nose 44 on the safety bar. On this rearward movement of

the breech block, the depending forward part thereof strikes the forward side of the nose 44 and pushes it (and the safety bar) rearwardly, causing said nose 44 to slide under the downwardly facing shoulder 46 on the hub of the hammer so that the parts will assume the position indicated in Fig. 2. This rearward movement of the breech block and its associated parts will withdraw a fresh cartridge from the magazine ready to transfer it to its position between the ejector and extractor as previously described. The forward movement of the action rod handle 4 from the position shown in Fig. 2 will carry the breech block ahead, the carrier simultaneously lifting the cartridge to the aforesaid position so that said cartridge will be inserted into the bore of the barrel. Just before the action rod reaches the limit of its forward excursion, the nose 42 at the forward end of the safety bar will be projected into the notch 47 on the under side of the action rod so that the final forward movement of the action rod will pull the safety bar bodily with it from the position indicated in Fig. 2 to that indicated in Fig. 1, shifting the nose 44 from the position shown in Fig. 2 to that shown in Fig. 1, thus releasing the hammer and allowing it to partially drop to the position where it is supported by the trigger, and simultaneously moving the nose 43 to the position where, when the hammer descends, it will be engaged by the shoulder 45 on the hub of the hammer to release the safety bar from the action rod when the gun is fired, as previously explained.

From the foregoing it will be seen that during the forward movement of the action rod, the cocked hammer cannot possibly descend until the action rod has reached the limit of its forward movement wherein the breech block is safely locked. It will also be seen that so long as the breech block is safely locked and the hammer is cocked, the action rod cannot be pulled rearwardly by the hand of the user of the gun while he is taking aim and is pulling rearwardly to hold the gun properly seated against his shoulder. When, however, the hammer has fully descended and the cartridge discharged, the action rod will be released so that the pump handle 4 may be pulled rearwardly to discharge the empty shell, cock the hammer and reload the gun for another shot.

48 is a finger piece which is exposed at the side of the gun and is connected through a slot in the side plate 7 with the safety bar so that it is possible to manually manipulate the safety bar to release the action rod without pulling the trigger and dropping the hammer whereby any cartridge in the barrel may be readily removed without being discharged.

We also provide a safety latch for the trigger which comprises a bolt 49 slidable in the frame of the receiver directly in advance of the trigger, the nose of said bolt being arranged to project into a notch 50 in the hub of the trigger when the hammer is cocked. This bolt 49 is provided with a finger piece 51 which is exposed adjacent to the trigger guard and which may be engaged by the finger so that said bolt may be slid forwardly to the position shown in Fig. 2 where the trigger is free, or rearwardly to the position shown in Fig. 1 where the trigger is locked.

As already stated, we have shown the invention as applied to a "take-down" firearm in which the barrel is detachable from the receiver, the parts being suitably interlocked. In this case the side plate 7 is provided with a locking shoulder 52 (Fig. 6) which engages with a locking shoulder 53 formed by undercutting the side of the receiver, as shown in Figs. 1 and 2. This interlocks the parts at the forward part of the receiver, while a thumb bolt 54 secures said parts together at the rear part of the receiver.

It will be observed that the firing pin 25 passes through a vertical slot in the locking bolt 26, thereby preventing the accidental disengagement or loss of the latter from the breech block when the gun is taken apart. The finger piece 51 of the trigger safety bolt is adapted to be held frictionally in place in either position by means of an overlying friction spring, indicated at 52.

The operation of the ejector is effected not only by means of the slot 21 and pin 22, but also by means of the tension of the thin tail which extends to the rear, it having been found in practice that the ejector is more effective by reason of the thinning down of the rear tail end than where the construction is such as to prevent tension from this part of the ejector.

What we claim is:

1. In a repeating firearm, a receiver, action mechanism contained therein including a reciprocating breech block, a vertically movable locking bolt and a vertically movable carrier, both carried by said breech block, a reciprocating action rod leading into the front of the receiver and coöperating with said locking bolt and with the breech block through the locking bolt, a cam in the side of the receiver coöperating with the carrier to actuate the same as the breech block is moved to and fro, a hammer and trigger, the former being arranged to be cocked by the reciprocation of the breech block, and a safety bar carried by the receiver and coacting with the hammer and action rod and arranged to hold the latter against unlocking movement while the fire-

arm is loaded and locked and the hammer is cocked.

2. In a repeating firearm, a receiver, action mechanism contained therein including a reciprocating breech block, a vertically movable locking bolt and a vertically movable carrier, both carried by said breech block, a reciprocating action rod leading into the front of the receiver and coöperating with said locking bolt and with the breech block through the locking bolt, a cam in the side of the receiver coöperating with the carrier to actuate the same as the breech block is moved to and fro, a hammer and trigger, the former being arranged to be cocked by the reciprocation of the breech block, and a safety bar carried by the receiver and coacting with the hammer and action rod and arranged to hold the latter against unlocking movement while the firearm is loaded and locked and the hammer is cocked, said safety bar being arranged to hold the hammer against descent from its retracted position until the breech block is locked.

3. In a repeating firearm, a receiver, action mechanism contained therein including a reciprocating breech block, a vertically movable locking bolt and a vertically movable carrier, both carried by said breech block, a reciprocating action rod leading into the front of the receiver and coöperating with said locking bolt and with the breech block through the locking bolt, a cam in the side of the receiver coöperating with the carrier to actuate the same as the breech block is moved to and fro, a hammer and trigger, the former being arranged to be cocked by the reciprocation of the breech block, and a safety bar carried by the receiver and coacting with the hammer and action rod and arranged to hold the latter against unlocking movement while the firearm is loaded and locked and the hammer is cocked, said safety bar being arranged to hold the hammer against descent from its retracted position until the breech block is locked, said safety bar having both a longitudinal sliding movement and an independent tilting movement.

4. In a repeating firearm, a receiver, action mechanism contained therein including a reciprocating breech block, a vertically movable locking bolt and a vertically movable carrier, both carried by said breech block, a reciprocating action rod leading into the front of the receiver and coöperating with said locking bolt and with the breech block through the locking bolt, a cam in the side of the receiver coöperating with the carrier to actuate the same as the breech block is moved to and fro, a hammer and trigger, the former being arranged to be cocked by the reciprocation of the breech block, and a safety bar carried by the receiver and coacting with the hammer and action rod and arranged to hold the latter against unlocking movement while the firearm is loaded and locked and the hammer is cocked, said safety bar being arranged to hold the hammer against descent from its retracted position until the breech block is locked, said safety bar having both a longitudinal sliding movement and an independent tilting movement, and including an upwardly projecting locking nose for engagement with said action bar, and two laterally projecting noses coacting with the hammer alternately, said hammer having a downwardly facing shoulder on its hub end for engagement by one of said last mentioned noses and having an upwardly facing shoulder on its hub portion arranged to engage and tilt said action bar when the hammer descends to free the action rod.

5. In a repeating firearm, a receiver, action mechanism therein including a breech block arranged for longitudinal movement only, a vertically movable locking bolt carried by and arranged in substantially the longitudinal center of said breech block, a vertically movable carrier, with means for moving said parts, an undercut vertical guide slot in the front of the breech block to guide a cartridge from the elevation of the magazine to the elevation of the barrel as the carrier ascends, an ejector and an extractor both carried by said breech block in a plane above said guide slot arranged to receive the rim of a cartridge and hold the same while the same is being projected into the barrel, fired and extracted therefrom.

6. In a repeating firearm, a receiver having a side opening, an action mechanism therein including a reciprocating breech block, an extractor carried by the breech block on the side adjacent said opening, an ejector arranged within a groove on the opposite side of said breech block, said ejector including a nose for engaging the cartridge shell and a flexible tail portion, a cam coacting with the forward part of the ejector for imparting an oblique movement to the nose of the ejector relatively to the path of travel of the breech block, said ejector having a limited sliding movement in the groove of the breech block with means on the receiver arranged to impart a relative forward sliding movement just before the breech block reaches its rearmost position with oppositely arranged undercut grooves in the front of the breech block arranged to receive the rim of the cartridge and guide it into position between the extractor and the ejector.

7. In a repeating firearm, a receiver, action mechanism therein including a breech

block arranged for longitudinal movement only, a vertically movable locking bolt carried by and arranged in substantially the longitudinal center of said breech block, a vertically movable carrier, with means for moving said parts, an undercut vertical guide slot in the front of the breech block to guide a cartridge from the elevation of the magazine to the elevation of the barrel as the carrier ascends, an ejector, an extractor above said guide slot arranged to receive the rim of a cartridge and hold the same while the same is being projected into the barrel, fired and extracted therefrom, and means for imparting to the ejector a movement in a substantially horizontal direction oblique to the line of the barrel, said means including a pin-and-slot connection, a shoulder on the side of the ejector and a coöperating shoulder on the side of the receiver in line with the shoulder on the ejector.

8. In a repeating firearm, a receiver, action mechanism therein including a reciprocating breech block guided in the receiver, a vertically movable locking bolt guided in the breech block and arranged to engage a locking shoulder on the receiver above the locking bolt, a vertically movable carrier slidable in the breech block in front of the locking bolt, a tubular magazine entering the front of the receiver, a cut-off for said magazine, and a forwardly projecting nose arranged to coact with said cut-off and to first release and then to elevate a cartridge from the plane of the magazine to the plane of the barrel, a hammer arranged to be cocked by the movement of the breech block, a safety bar arranged to coact with the action rod and the hammer, said safety bar having both a longitudinally sliding and an independent tilting movement, said rod being held against longitudinal movement by the hammer when the firearm is loaded and the hammer is cocked, and engaging the hammer to prevent the movement of the latter when the breech block is being reciprocated and until said breech block is locked, said hammer also coacting with said safety bar to tilt the same to free the action rod when the hammer descends.

9. In a repeating magazine firearm, a receiver, action mechanism therein, an action rod movable to and fro and entering the front of the receiver and coöperating with the action mechanism therein, a hammer pivoted within the receiver, a safety bar within the receiver and arranged to cooperate between the hammer and the action rod, a nose on the safety bar arranged to lock into the action rod when the same is projected forwardly, another nose upon the safety bar arranged to be engaged by the hammer to prevent the longitudinal movement of the safety bar when the hammer is cocked and the action rod advanced to the action locking position, another nose on the safety bar at a point adjacent to the hammer, and a shoulder on the hammer arranged to engage the last mentioned nose when the hammer has descended to tilt the safety bar and disengage it from the action rod, with means carried by the action mechanism for engaging the safety bar and shifting it rearwardly to a position where the second mentioned shoulder will prevent the descent of the hammer while the action mechanism within the receiver is being operated during the act of inserting a cartridge in the barrel.

10. In a repeating firearm, a receiver, a breech block, a locking bolt, a hammer, means for operating said parts, and a safety bar, said safety bar having a limited sliding movement and a limited tilting movement coöperating between the hammer and the means for moving the breech block.

11. In a magazine repeating firearm, a receiver, a longitudinally movable breech block, a hammer, a vertically movable locking bolt carried by said breech block, a laterally projecting lug on said locking bolt, an action rod having an oblique recess forming two opposite beveled cam faces, one being shorter than the other, a lock-up shoulder at the top of the short cam face, said locking bolt lug standing in said recess and arranged to be operatively moved up and down by the engagement between said lug and said cam face as said action rod is moved to and fro, a lock-up shoulder in the top of the receiver arranged to coöperate with the said locking bolt, said lug standing on the lock-up shoulder of said rod when the locking bolt is in locking position, and means for preventing the retraction of said action rod to unlock the gun, said hammer coöperating with said means to release the rod when the hammer descends.

12. In a repeating firearm, a receiver, movable action mechanism contained therein including a carrier arranged to move up and down, means for moving said carrier up and down comprising a cam groove in the side wall of said receiver, said cam groove including an upper arched path and a lower path, both paths being of varying depth, one end of the upper path being shallower than the adjacent part of the lower path where said paths meet the other end of the lower path being shallower than the adjacent part of the upper path where said paths meet, a device carried by said carrier and projecting into said cam groove, said device being yieldingly mounted whereby it may follow the bottom of the groove as well as the side walls thereof.

13. In a repeating firearm, a frame having a side opening, a reciprocating breech

block, an extractor carried on one side thereof adjacent the frame opening, an ejector carried in a groove in the opposite side thereof, said ejector comprising a nose for engaging the cartridge, a yielding tail portion lying in a groove in the side of the breech block opposite the extractor, and a cam adjacent the forward part of the ejector for imparting an oblique movement to the nose of the ejector relatively to the breech block as the breech block approaches the limit of its rearward movement, a stop shoulder on the frame arranged to engage the ejector and hold it against further rearward movement just before the breech block reaches its rearmost position.

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