J. M. BROWNING.

FIREARM.

APPLICATION FILED JULY 26, 1919.

1,424,553.

Patented Aug. 1, 1922.

3 SHEETS—SHEET 1.

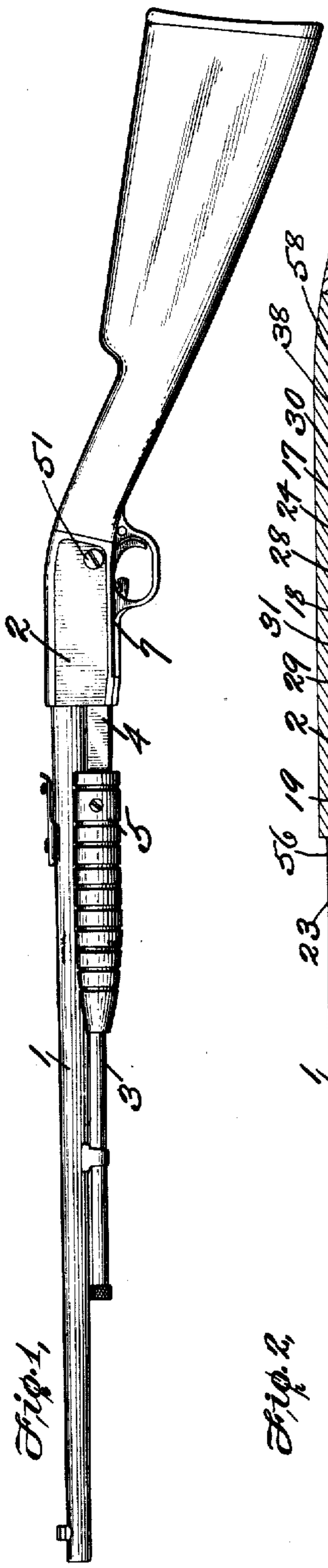

Fig. 1.

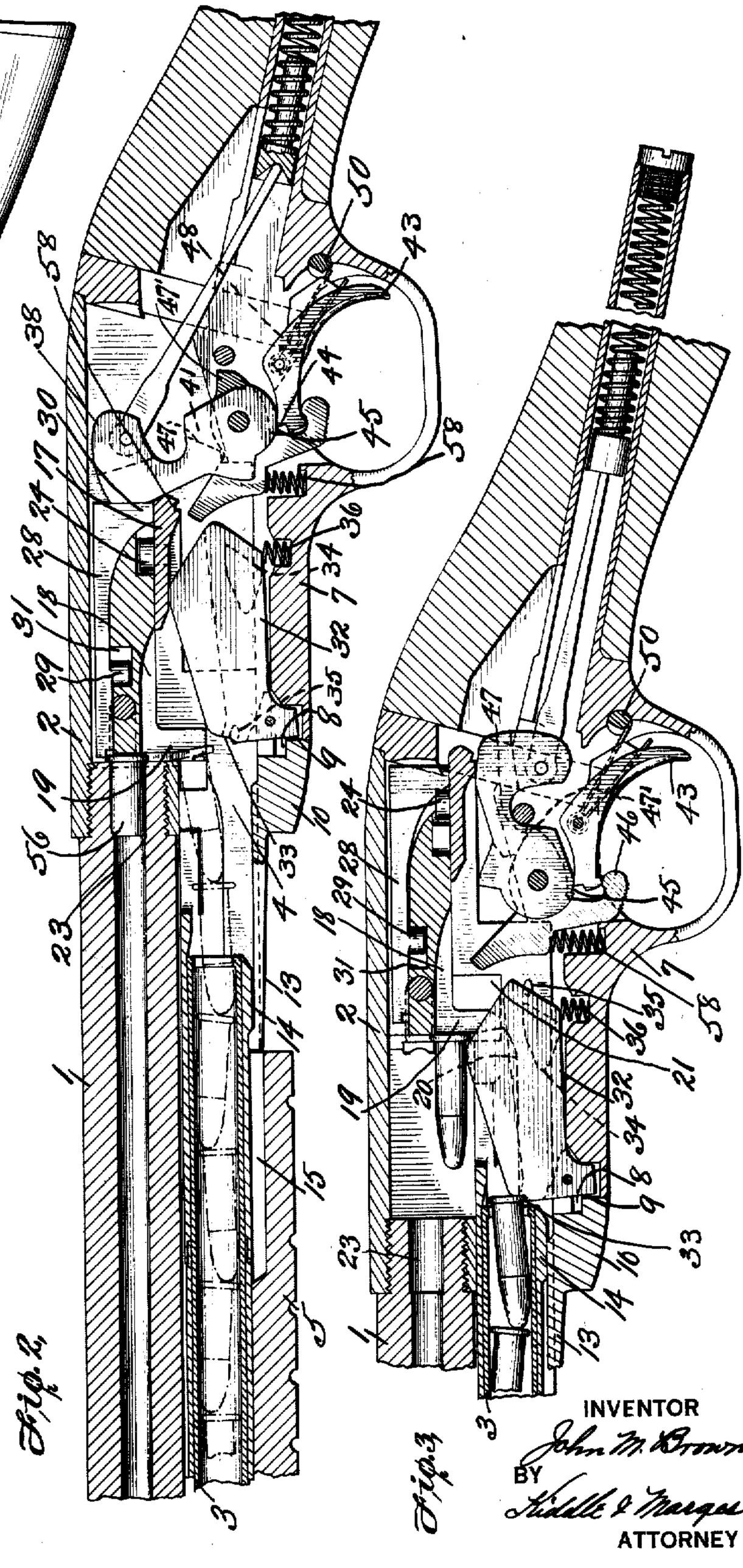

Fig. 2.

Fig. 3.

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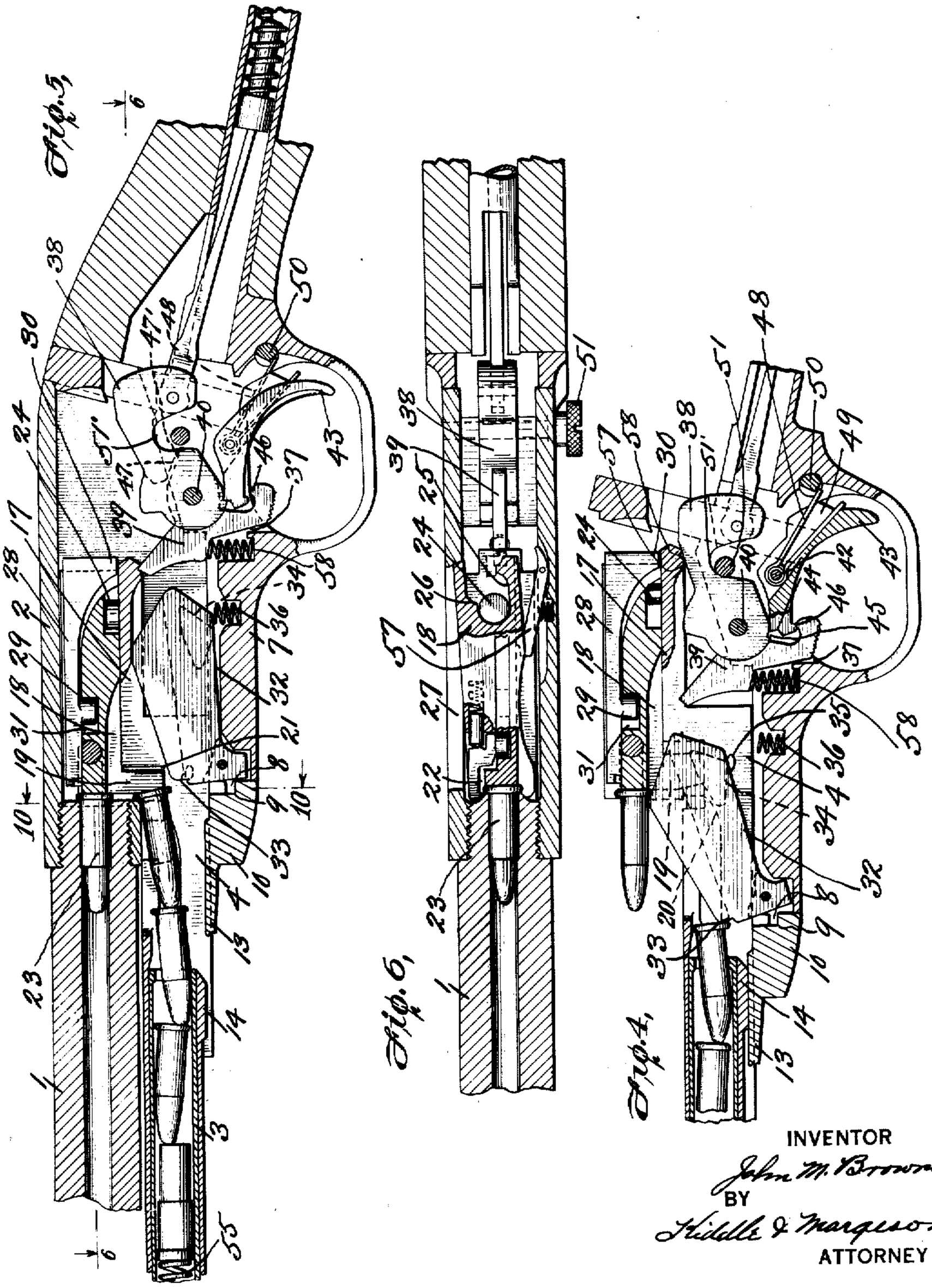

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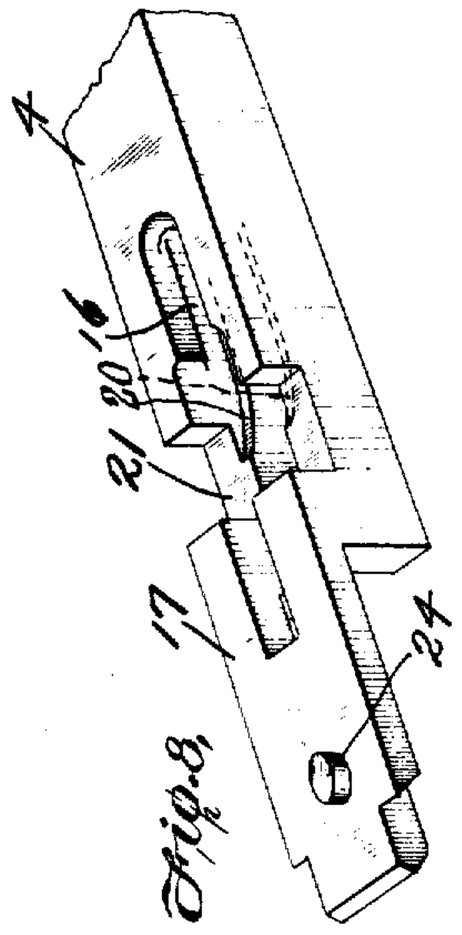

Fig. 8.

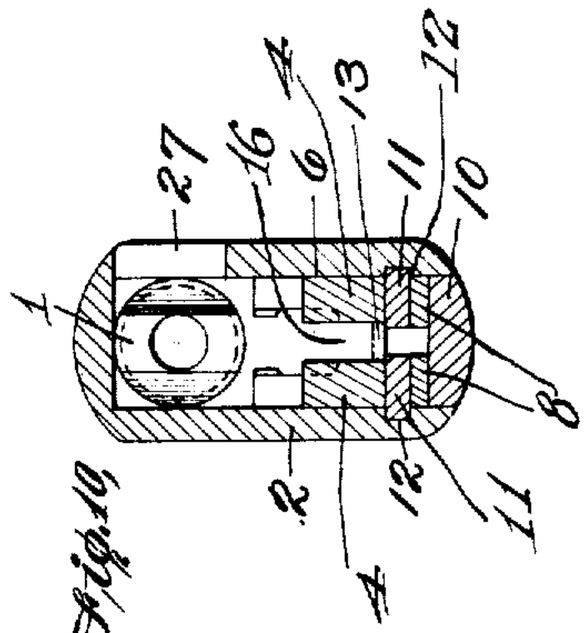

Fig. 10.

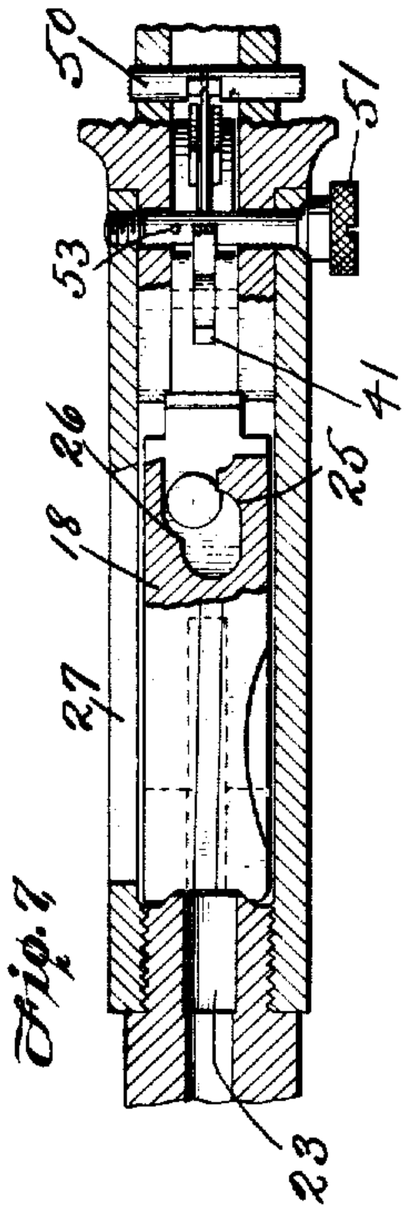

Fig. 7.

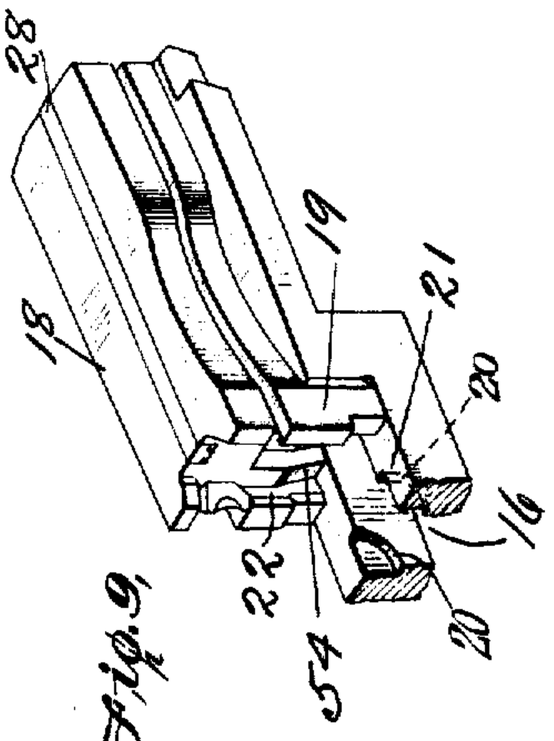

Fig. 9.

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UNITED STATES PATENT OFFICE.

JOHN M. BROWNING, OF OGDEN, UTAH.

FIREARM.

1,424,553. Specification of Letters Patent. Patented Aug. 1, 1922.

Application filed July 26, 1919. Serial No. 313,581.

To all whom it may concern:

Be it known that I, JOHN M. BROWNING, a citizen of the United States, and a resident of the city of Ogden, county of Weber, and State of Utah, have invented certain new and useful Improvements in Firearms, of which the following is a specification.

My invention relates to an improvement in repeating firearms and an object thereof is the provision of a firearm provided with a combined sliding magazine and action-slide which may be removed from the receiver of the firearm without removing the handle of the magazine.

Another object of the invention is the provision of an unbroken guideway for the head of a cartridge, from the time the cartridge leaves the magazine until it is in place in the chamber of the firearm.

A further object of the invention is the provision of a combined slide-and-trigger-lock whereby the trigger is moved into position to engage with the notch in the hammer and hold the hammer in cocked position, whether finger pressure on the trigger is exerted or not, said trigger being locked in such position from the time the hammer has reached the limit of its rearward movement until the action-slide has been forced forward to the firing position, when the trigger is unlocked and the action-slide locked in its full forward position.

A further object of the invention is the provision of a carrier pivoted at its front end, the front end of the carrier functioning as a cartridge-stop and the rear end, in the operation of transferring the cartridge from the magazine to the chamber of the firearm, bearing on the cartridge directly beneath the head of the same.

A still further object of the invention is the provision of a spring mounted on the trigger-pivot one arm of which spring functions as a trigger-spring and the other as a safety-spring, and the provision of means for preventing lateral movement of the spring.

A further object of the invention is the provision of an improved assembling-screw for holding the rear end of the trigger-plate in the receiver, which screw has been provided with means co-operating with a hammer-slot in the trigger-plate whereby in taking down the firearm the assembling-screw may not be accidentally removed.

Further objects of the invention will be pointed out in connection with the following detailed description.

In the accompanying drawings wherein I have illustrated an embodiment of my invention,

Fig. 1 shows in elevation a repeating firearm in which my invention is incorporated;

Fig. 2 is a sectional elevational view through the firearm of Fig. 1 showing the positions assumed by the action of the firearm immediately upon the discharge of the same;

Fig. 3 is a sectional elevational view, similar to Fig. 2, showing the action-slide and hammer in their extreme rearward position, the trigger of the firearm locked, and a cartridge on its way to the chamber;

Fig. 4 is a sectional elevational view, similar to Fig. 2, showing the action-slide advanced towards its forward position, the hammer still being at the extreme of its rearward movement, the trigger locked and a cartridge raised to a position in the breech-block whereby it will enter the chamber of the firearm as the action-slide and magazine are moved to their extreme forward position.

Fig. 5 shows in sectional elevation the positions assumed by the various parts of the firearm when the same is ready to be discharged, the action-slide in this view being shown in locked position and the trigger unlocked; and the hammer at full cock;

Fig. 6 is a view taken on the line 6—6 of Fig. 5, looking in the direction of the arrows;

Fig. 7 is a part sectional view showing the breech-block moved out of the ejecting opening in the receiver;

Figs. 8 and 9 are views in perspective of a portion of the action-slide and the breech-block respectively; and

Fig. 10 is a section taken on the line 10—10 of Fig. 5.

Referring to the drawings in detail, 1 designates the barrel of a firearm, 2 a receiver carried thereby and 3 and 4 a sliding magazine and action-slide respectively, fastened rigidly together and carried beneath the barrel 1 and held in place in the receiver 2. 5 designates a handle secured to the magazine 3 whereby the latter, together with the action-slide 4 may be reciprocated for the purposes hereinafter set forth.

The receiver 2 as shown in Fig. 10 for ex-

ample, is provided with a slot 6 cut through the bottom and front end thereof whereby the magazine 3 and the action-slide 4 may be placed in position in the receiver through the bottom thereof, thus eliminating the necessity of removing the handle 5 of the magazine every time it is desired to take the firearm down. The slot 6 also receives a trigger-plate 7 which is fastened to the stock of the firearm, the front end 8 of the trigger-plate being adapted to be received by a groove 9 cut in the rear end of an assembling slide 10 which, when the firearm is assembled, maintains the magazine and action-slide, together with the front end of the trigger-plate in position in the receiver.

The assembling-slide is provided with ribs 11 adapted to be received by slots 12 cut in the walls of the slot 6 in the receiver. In order that the assembling-slide may not accidentally be removed from the receiver, I have provided a spring-arm 13 on the front end thereof which spring-arm as shown in Fig. 2 for example, is forced over a projection 14 near the front end of the action-slide 4, a slot 15 having been provided in the handle 5 whereby the latter may be moved rearwardly, together with the magazine and action-slide. The rear end of the assembling-slide abutting the trigger-plate 7, its rearward movement is prevented.

The magazine 3 and action-slide 4 are here shown secured rigidly to each other, the action-slide being provided with a carrier-slot 16 as shown in Fig. 8 for example. With the parts in the position shown in Fig. 2, the bottom of the carrier-slot 16 is covered by the spring-arm 13 of the assembling-slide.

Mounted upon the extension 17 of the rear end of the action-slide, is a breech-block 18 shown in perspective in Fig. 9. This breech-block is provided with a downwardly extending portion 19 at the front end thereof which extends into a notch 21 cut in the action-slide and which projection is provided with vertical guideways 22 for guiding a cartridge in its movement from the magazine 3 to the chamber 23 of the firearm. The construction of these guideways will be explained more in detail hereinafter.

The upper side of the extension 17 of the action-slide is provided with a stud 24 adapted to cooperate with cam surfaces 25 and 26 cut in the under side of the breech-block, so that relative movement of the action-slide to the breech-block will cause the breech block to move laterally, swinging about the downwardly extending portion 19 as a pivot. This movement of the breech-block is illustrated in Figs. 6 and 7, Fig. 6 showing the block moved to its extreme outward position to a point where the rear end thereof is locked in the ejecting opening 27 of the receiver.

The breech-block carries a firing-pin 28 having downwardly extending projections 29 and 30 at the middle and rear end thereof respectively, the projection 29 cooperating with a slot 31 in the breech-block whereby movement of the firing-pin forwardly and rearwardly of the breech-block is limited.

A carrier 32 pivoted at its front end is carried at the front end of the trigger-plate 7 and as shown in Fig. 3 for example, is provided with a squared end 33 functioning as a cartridge-stop to hold back the cartridges in the magazine as a cartridge is being transferred to the chamber of the firearm. The side of the carrier is provided with a cam 34 adapted to co-operate with a cam or stud 35 on the action-slide whereby, as the action-slide is reciprocated the carrier will be caused to be elevated and depressed. A spring 36 is provided beneath the rear end of the carrier so that when the action-slide is moved to its rearward position as shown in Fig. 3 for example, until the cam on the slide passes the car 34, the carrier will be lifted by the spring so that on the reverse movement of the action-slide the cam on the slide will travel along the lower face of the cam 34 to cause the carrier to be elevated.

The trigger-plate 7 is slotted at 37 to receive a hammer 38 and a combined slide-and-trigger-lock 39 which is pivoted on a common pivot 40 in the trigger-plate. The hammer is provided with a slot 41 adapted to receive the slide-and-trigger-lock 39 whereby movement of the hammer relatively to the same is permitted.

Pivoted in the trigger-plate on a pivot 42 is a trigger 43 provided with a notch or shoulder 44 in the front end thereof adapted to co-operate with a notch 45 in the hammer so that the hammer when moved rearwardly to its full-cocked position will be maintained in that position until it is desired to discharge the firearm. The slide-and-trigger-lock has a downwardly extending portion 46 adapted to lock the end of the trigger to prevent premature movement of the same to release the hammer 38, the slide-and-trigger-lock being moved to such trigger-locking position by a shoulder 47 formed in the slot 41 in the hammer already referred to engaging a projection 47′ on the slide and trigger-lock as the hammer is moved to its extreme rearward position. As will be hereinafter pointed out, the slide-and-trigger-lock functions to prevent movement of the trigger to release the hammer after the hammer has been cocked until the action-slide has been moved to its extreme forward position and locked.

In addition to the trigger-locking device already referred to, I have provided a combined safety-and-trigger-spring designated 48, which spring is mounted upon the pivot 42 carrying the trigger as already described. The spring is received by a slot 49 in the rear of the trigger whereby lateral move-

ment of the spring is prevented. The spring co-operates with a safety-pin 50, one arm of the spring resting against the pin and the other against the back part of the trigger. This pin is provided for the purpose of preventing movement of the trigger to release the hammer after the trigger has been relieved of the action of the slide-and-trigger-lock as already referred to. The spring is at all times under more or less tension so that the safety-pin 50 will be maintained in adjusted position at all times.

In order to facilitate the assembling and taking down of the firearm with respect now to the assembling of the trigger-plate, in the receiver, I have provided an assembling-screw 51 which passes through the trigger-plate at the rear of the pivot 40 upon which the hammer is mounted, provision having been made at 51′ in the hammer to permit movement of the hammer without interfering with the assembling-screw. Accidental removal of the assembling-screw from the trigger-plate is prevented by a pin 53 in the screw, adapted to engage the walls of the slot 37 in the trigger-plate.

Assuming now that the parts are in the position shown in Fig. 2 and that the magazine is charged with cartridges, I will describe a cycle of operation of my invention.

As will be seen from Fig. 2, the head of the foremost cartridge in the magazine is at this time resting against the bevelled portions 54 in the front end of the breech-block 19 and at the bottom of the guideways 22, being urged to this position by the magazine spring 55. The magazine 3 and action-slide 4 may now be moved rearwardly by the handle 5, the slide-and-trigger-lock 39 having been moved out of slide-locking position by movement of the hammer 38 to the position shown in Fig. 2. As the action-slide moves rearwardly and relatively to the carrier 32, the inclined upper surface of the latter will gradually force the foremost cartridge up the guideways 22 in the breech-lock. At the beginning of the rearward movement of the action-slide the end 17 thereof engages the face of the hammer 38 to force the same rearwardly toward cocked position, carrying the hammer out of engagement with the rear end of the firing-pin 28. It should be noted that the hammer is, from the beginning of the rearward movement of the action-slide and until the same has been returned to its extreme forward position and locked, positively maintained out of contact with the firing-pin. At the beginning of the rearward movement of the action-slide, the stud 24 engages the shoulder of the cam face 25 at the bottom of the breech-block to cause the breech-block to be moved laterally from the position shown in Fig. 6 for example, to the position in Fig. 7, out of locked position in the ejecting opening of the receiver. The hammer, action-slide and magazine, and the breech-block also, as soon as the front end of the slot 21 in the action-slide strikes the downwardly extending portion 19, now travel rearwardly, the breech-block carrying with it the empty shell 56 which is automatically ejected through the ejecting opening 27 by the ejector 57. It is to be here noted that the firing-pin is moved rearwardly when the stud 24 engages the rear projection 30, so that the firing-pin cannot possibly come into contact with the head of a cartridge until the breech-block is returned to its forward position. The rearward movement of the action-slide and magazine is continued until their limit of movement has been reached at which time the hammer 38 will have been moved to full-cocked position and the slide-and-trigger-lock 39 will have been moved to trigger-locking position.

As will be noticed from Fig. 3, the hammer is moved rearwardly slightly beyond full-cocked position to cause the slide-and-trigger-lock 39 to be moved to trigger-locking position, but that upon reversal of movement of the action-slide the hammer is prevented from moving forward again to uncocked position by means of the shoulder 44 and notch 45 in the end of the trigger and the under side of the hammer, as already described. At this time it will be noted also that the squared end 33 of the carrier 32 as shown in Fig. 3 for example, functions as a cartridge-stop and the next cartridge in the magazine is up to this time, prevented from moving rearwardly.

As the parts move to their extreme rearward position, the cam 35 on the action-slide will clear the rearward end of the cam 34 on the carrier so that the spring 36 may move the carrier upwardly, slightly, in order that upon forward movement of the parts, the cam 35 will follow the under face of the cam 34 to elevate the carrier as shown in Fig. 4 for example, thus forcing the cartridge which at this time has been moved upwardly in the guideway 22 in the end of the breech-block, to its extreme upward position, the parts at this time being in the position shown in Fig. 4. The trigger is now maintained locked by the slide-and-trigger-lock 39, the rearward end of the action-slide still projects beyond the rearward end of the firing pin 28 so that contact of the hammer with the firing-pin is prevented independently of the fact that the hammer is locked and the firing-pin is also prevented from moving forward relative to the breech-block by the projection 30 engaging the stud 24. The forward movement of the parts is continued until their limit of travel has been reached forcing the shell into the chamber 23 and the engagement of the stud 24 with the cam-face 26 in the breech-block will move the

breech-block laterally, forcing the rear end thereof into the position shown in Figs. 5 and 6.

As the parts move forward from the position shown in Fig. 4 the stud 35 on the action-slide clears the front end of the cam 34 on the carrier, allowing the magazine spring to return the carrier to its normal position. The cam surfaces 20 in the slot 16 of the action-slide then move under the head of the cartridge resting against the squared end 33 of the carrier, and lift the head up clear of said squared shoulder so that the magazine spring can force the cartridge back against the bevelled faces 54 on the front end of the breech-block 19. It will be noted here that the progress of the cartridges through the magazine as they are taken out one by one through the rear to be fired, is comparatively gradual, there being no long jumps or severe stops to injure the cartridges.

As the parts reach their limit of forward movement the shoulder 57′ on the action-slide engages the end of the slide-and-trigger-lock 39 which at this time is being maintained in trigger-locking position by the spring 58, depressing the slide-and-trigger-lock out of trigger-locking position, the end of the same then moving into the groove 58 in the rear end of the slide to lock the same in its extreme forward position.

The parts are now in the position shown in Fig. 5, the hammer being at full cock, the trigger unlocked, the action-slide locked in its forward position and the firing-pin projecting beyond the rear end of the breech-block in position to be struck by the hammer.

It is evident that various modifications may be made in the construction above described within the purview of this invention. I do not, therefore, limit myself to the specific details of construction shown in the drawings and particularly described.

I claim:

1. In a firearm, the combination of a sliding magazine, an action-slide, a laterally movable breech-block carried by said slide and actuated by said magazine, a receiver having an ejecting-opening therein, and means for locking the breech-block in the ejecting-opening when actuated by said magazine.

2. In a firearm, the combination of a sliding magazine, an action-slide actuated thereby, a breech-block carried by the action-slide, means acting on the rear end of the breech-block to move it sidewise and forward and means at the front end to move it to the rear.

3. In a firearm, the combination of a sliding magazine, an action-slide actuated by said magazine, being provided with a notch, a breech-block extending into the notch in the action-slide, said breech-block being provided with an unbroken guideway for receiving the head of a cartridge as it leaves the magazine and which thereafter guides the head of the cartridge as the same is transferred to the chamber of the firearm.

4. In a firearm, the combination of a sliding magazine, an action-slide, a breech-block carried by said slide and actuated by said magazine, a receiver having an ejecting-opening therein, and means for locking the rear end of said breech-block in the ejecting opening when actuated by said magazine.

5. In a firearm, the combination of a receiver having an ejecting-opening, a sliding magazine, an action-slide, a breech-block carried by said slide, a firing-pin carried by said breech-block, said pin being positively actuated rearwardly of said breech-block at the beginning of the rearward movement of said magazine, and said breech-block being actuated laterally into the ejecting-opening upon forward movement of the magazine.

6. In a firearm, the combination of an action-slide, a breech-block, a firing-pin having two downwardly projecting parts, one at the rear end co-operating with said slide whereby the firing pin is positively actuated rearwardly of the breech-block and the other for limiting movement of the pin relatively to the breech-block.

7. In a firearm, the combination of a sliding magazine, an action-slide and a carrier pivoted at its front end co-operating with said magazine and slide.

8. In a firearm, the combination of a sliding magazine, an action-slide and a carrier pivoted at its front end and provided with means at its rear end co-operating with the action-slide and said magazine for elevating a cartridge.

9. In a firearm, the combination of a magazine, a pivoted carrier, means for moving the carrier about its pivot, and a spring in said magazine, the thrust of which returns the carrier to its former position.

10. In a firearm, the combination of a magazine, a carrier pivoted at its forward end, means for moving the carrier about its pivot and a spring in said magazine, the thrust of which returns the carrier to its former position.

11. In a firearm, the combination of a sliding magazine, an action-slide actuated thereby, a combination cartridge-carrier and cartridge-stop pivoted at its front end and co-operating with the action-slide.

12. In a firearm, the combination of a sliding magazine, and a carrier pivoted at its front end and actuated by the magazine and adapted to raise a cartridge taken from the magazine into position to be received by the chamber of the firearm.

13. In a firearm having a magazine, the combination of a breech-block having cartridge-guideways extending down to the

magazine, a carrier for forcing cartridges up the said guideways, and a magazine-spring for returning the carrier to normal position.

14. In a firearm, the combination of a carrier pivoted at its front end and acting as a carrier and cartridge-stop, a sliding magazine and an action-slide having a fixed stud for elevating said carrier.

15. In a firearm, the combination of a sliding magazine, a pivoted carrier the front end of which functions as a cartridge-stop, and a cam in operative relation to said carrier for raising a cartridge-head when the magazine is moved in a forward direction to clear the end of the carrier.

16. In a firearm, the combination of a sliding magazine, a breech-block, a pivoted carrier the front end of which functions as a cartridge-stop, and a cam in operative relation to said carrier for raising a cartridge-head when the magazine is moved in a forward direction to clear the end of the carrier and into position against the breech-block.

17. In a firearm, the combination of a sliding magazine, a breech-block having a downwardly extending projection, a pivoted carrier the front end of which functions as a cartridge-stop, and a cam in operative relation to said carrier for raising a cartridge-head when the magazine is moved in a forward direction to clear the end of the carrier, and into position against the projection of the breech-block.

18. In a firearm, the combination of a sliding-magazine, a pivoted carrier the front end of which is provided with a squared surface functioning as a cartridge-stop, and a cam in operative relation to said carrier for raising a cartridge-head when the magazine is moved in a forward direction to clear the squared surface of the carrier.

19. In a firearm, the combination of a sliding magazine, an action-slide, a breech-block carried thereby, a pivoted carrier the front end of which functions as a cartridge-stop, and a cam carried by the action-slide for raising a cartridge-head when the magazine is moved in a forward direction to clear the end of the carrier.

20. In a firearm, the combination of a sliding magazine, an action-slide, a breech-block carried thereby and having a projection extending into said action-slide, a pivoted carrier the front end of which functions as a cartridge-stop, and a cam carried by the action-slide for raising a cartridge-head when the magazine is moved in a forward direction to clear the end of the carrier and into position against the said projection on the breech-block.

21. In a firearm, the combination of an action-slide, a breech-block carried thereby having a projection co-operating with the action-slide and acting as a pivot about which the breech-block is swung.

22. In a firearm, the combination of a magazine, an action-slide, a breech-block carried thereby having a projection co-operating with the action-slide and acting as a pivot about which the block is swung, said breech-block being provided with an unbroken guideway for cartridges passing from the magazine.

23. In a firearm, the combination of a sliding magazine below the barrel of the firearm, a receiver to which the firearm barrel is secured and which is slotted through the front end below the barrel of the firearm so that the magazine may be lifted out at the bottom of the receiver.

24. In a firearm, the combination of a sliding magazine, a receiver slotted through the front end below the barrel of the firearm so that the magazine may be lifted out at the bottom of the receiver, and an assembling slide for holding the magazine in place in the receiver.

25. In a firearm, the combination of a sliding magazine, an action-slide, a receiver slotted through the front end below the barrel of the firearm whereby the magazine and action-slide may be lifted out at the bottom of the receiver, an assembling slide for holding the magazine and action-slide in place in the receiver and provided with a spring arm co-operating with the action-slide for holding the assembling slide in place.

26. In a firearm, the combination of a sliding magazine, a trigger-plate, and a receiver carrying the magazine and trigger-plate which receiver is slotted through the bottom and front end whereby the trigger-plate and magazine may be lifted out at the bottom of the receiver.

27. In a firearm, the combination of a sliding magazine, a trigger-plate, a receiver for the magazine and trigger-plate slotted through the bottom and front end whereby the trigger-plate and magazine may be lifted out at the bottom of the receiver, and an assembling-slide for holding the front end of the trigger-plate in position in the receiver.

28. In a firearm, the combination of a sliding magazine, an action-slide provided with a carrier-slot, a receiver slotted through the front end so that the magazine and action-slide may be lifted out at the bottom of the receiver, an assembling-slide for holding the magazine and action-slide in place and provided with a spring arm acting as a cover for the carrier-slot and for holding the assembling-slide in place.

29. In a firearm, the combination of a sliding magazine, an action-slide provided with a carrier-slot, a receiver slotted through the front end so that the magazine and action-slide may be lifted out at the bottom of

the receiver, an assembling-slide for holding the magazine, action-slide and front end of the trigger-plate in place and provided with a spring arm acting as a cover for the carrier-slot and for holding the assembling-slide in place.

30. In a firearm, the combination of a receiver, a trigger-plate slotted to receive a hammer, an assembling-screw for holding the receiver and trigger-plate assembled and provided with means co-operating with a wall of the slot in the trigger-plate to prevent removal of the screw.

31. In a firearm, the combination of a combined slide and trigger-lock and a hammer pivoted on a common pivot, the slide and trigger-lock being moved positively into trigger-locking position by the hammer.

32. In a firearm, the combination of a combined slide and trigger-lock and a hammer pivoted on a common pivot, the slide and trigger-lock being moved positively by the hammer into trigger-locking position when the hammer is near the limit of its rearward movement.

33. In a firearm, the combination of a hammer, and a combined slide and trigger-lock moved into trigger-locking position by the hammer when the latter is near the limit of its rearward movement, and thrown out of slide-locking position by the hammer when the latter is near the limit of its forward movement.

34. In a firearm, the combination of an action-slide, a hammer, and a combined slide and trigger-lock, the latter being moved by the hammer to trigger-locking position when the hammer nears the limit of its rearward movement and thrown out of trigger-locking position by the slide when the slide nears the limit of its forward movement.

35. In a firearm, the combination of an action-slide, a hammer and a combined slide and trigger-lock, the latter being moved by the hammer to trigger-locking position when the hammer nears the limit of its rearward movement and thrown out of trigger-locking position by the slide when the slide nears the limit of its forward movement, the slide and trigger-lock then moving automatically into slide-locking position.

This specification signed and witnessed this 23d day of June, A. D. 1919.

JOHN M. BROWNING.

Signed in the presence of—
R. M. MARKLE,
VAL A. BROWNING.