J. M. BROWNING.

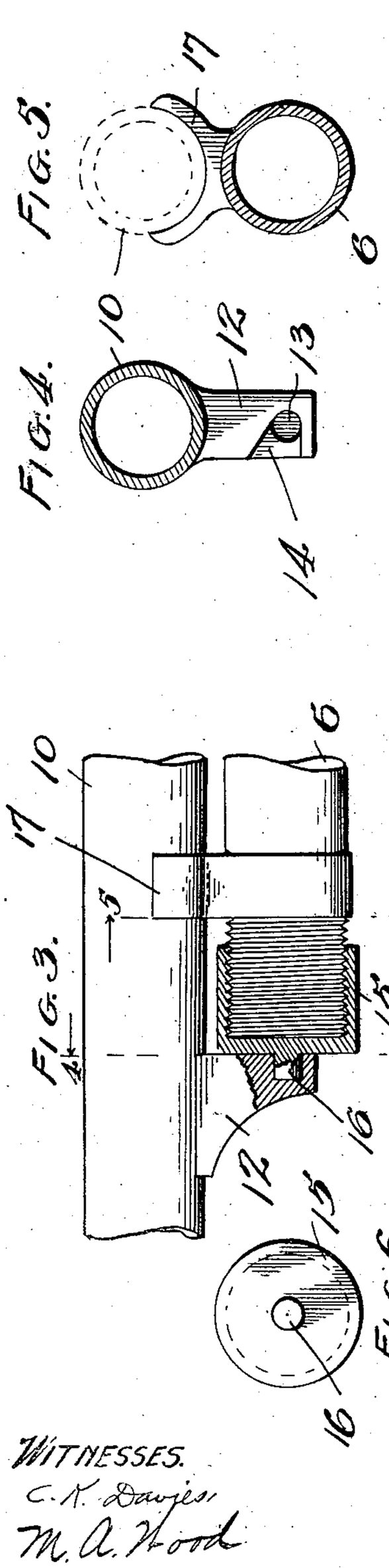
FIREARM.

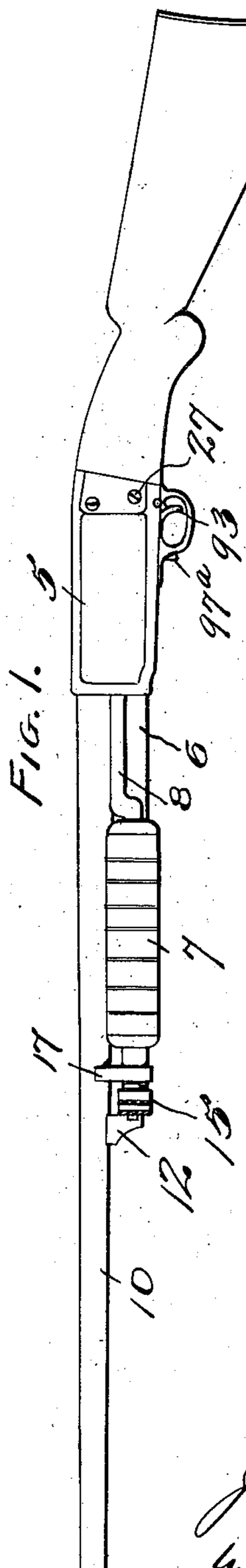
APPLICATION FILED NOV. 26, 1913.

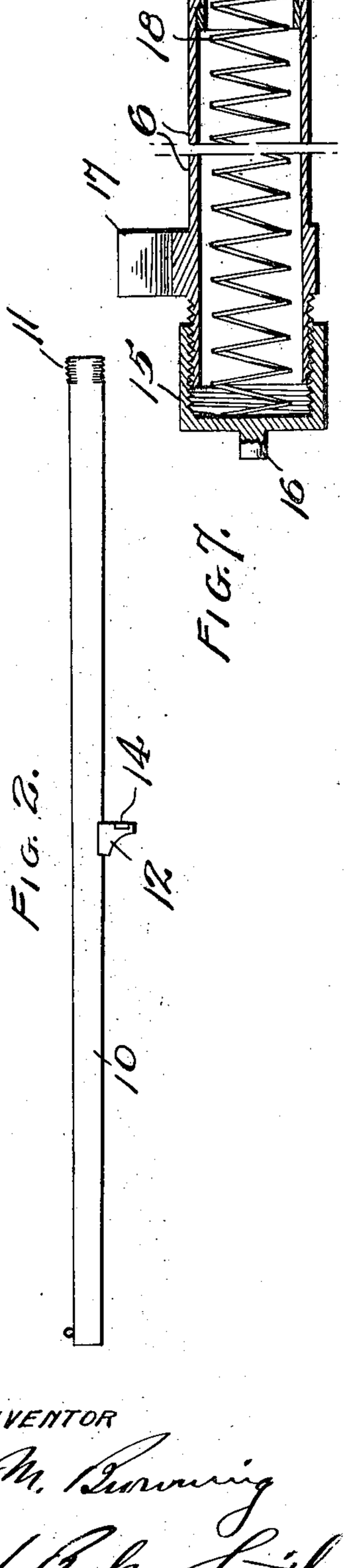
1,143,170.

Patented June 15, 1915.

5 SHEETS—SHEET 1.







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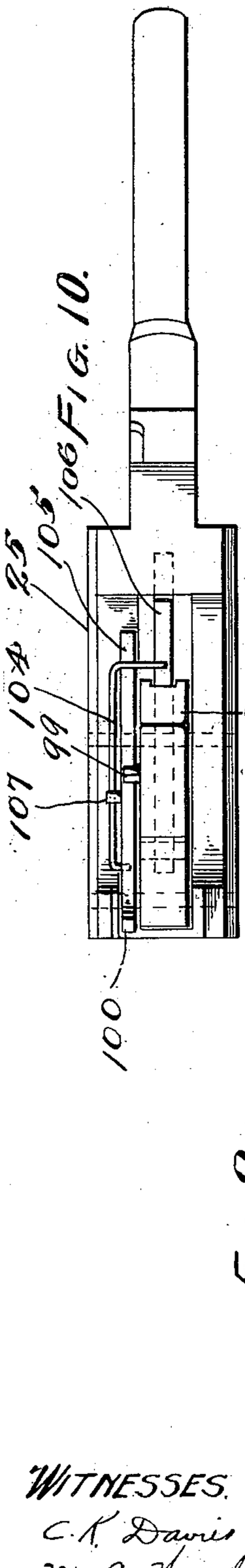

FIG. 10.

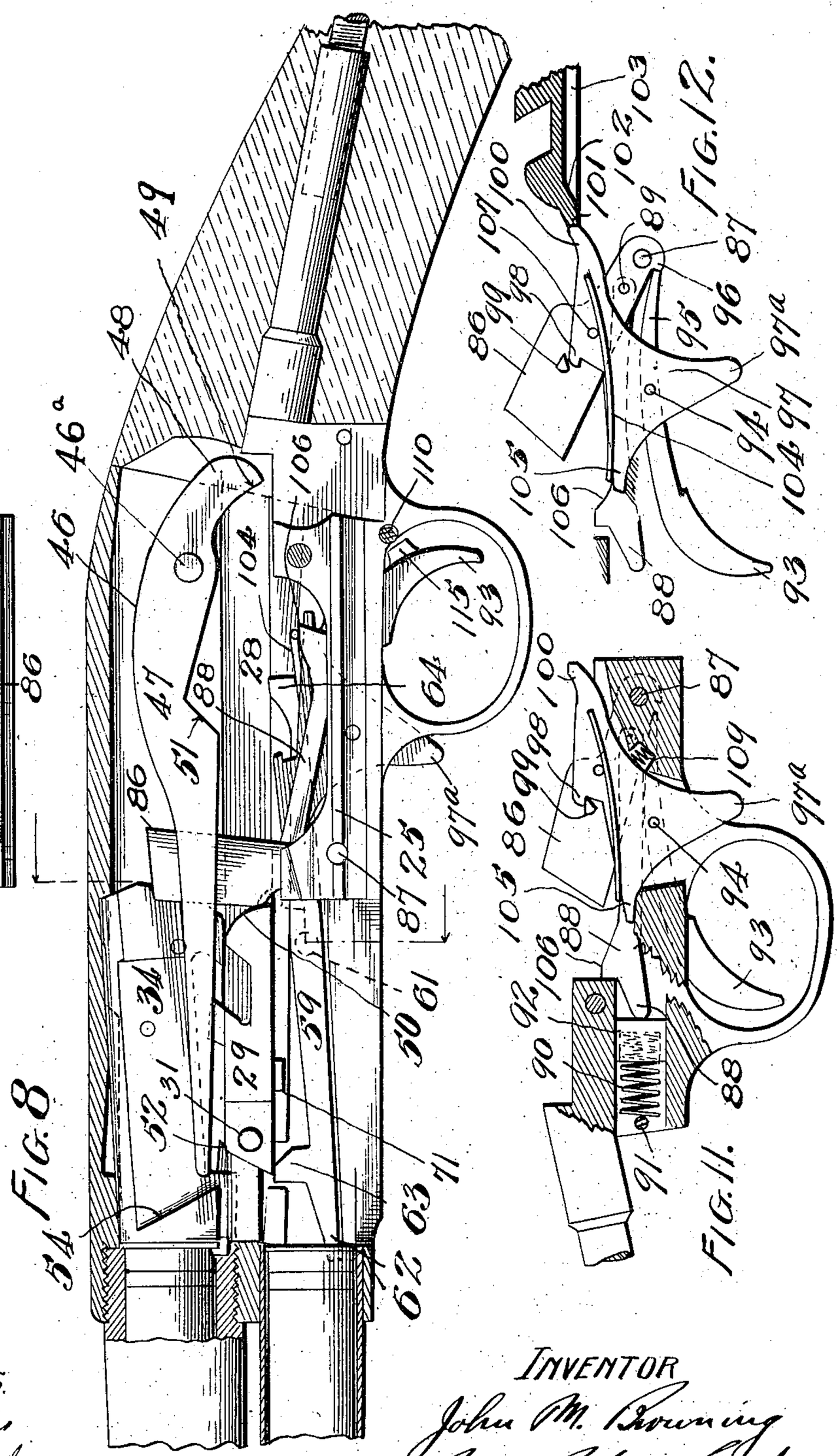

FIG. 8

FIG. 12.

FIG. 11.

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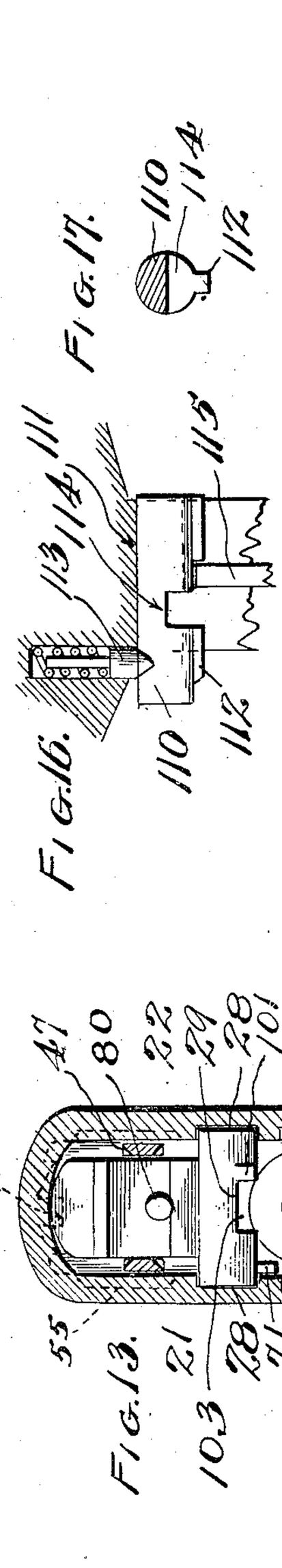

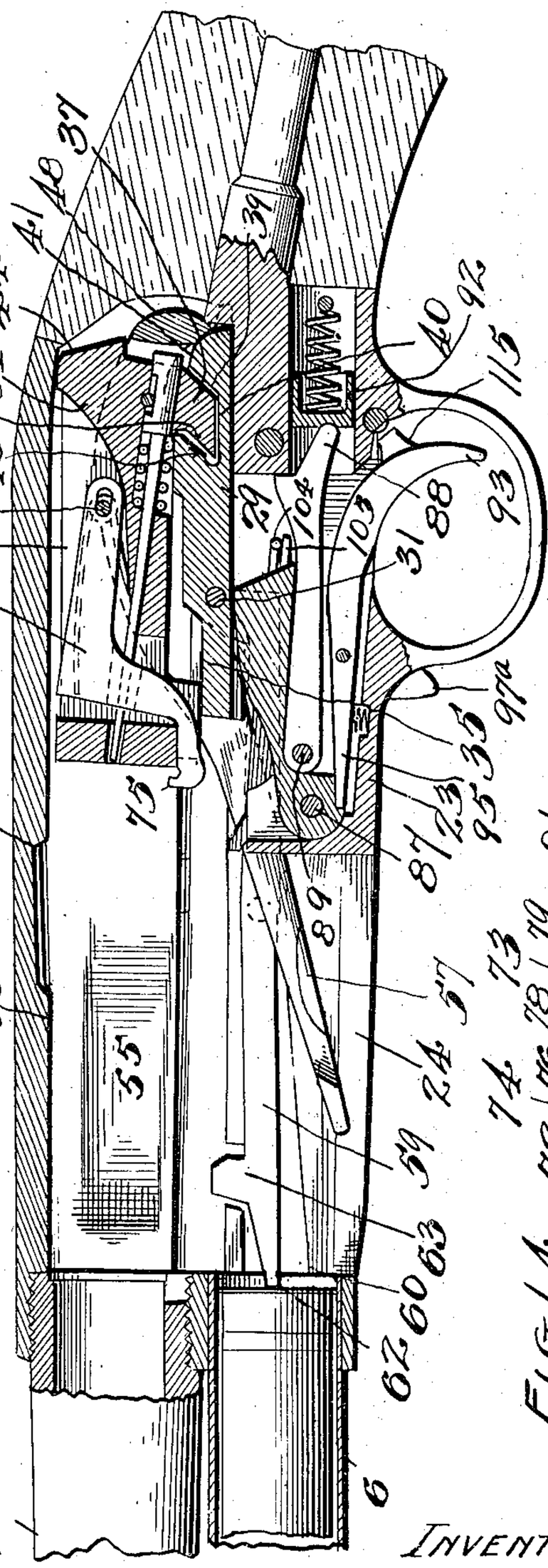

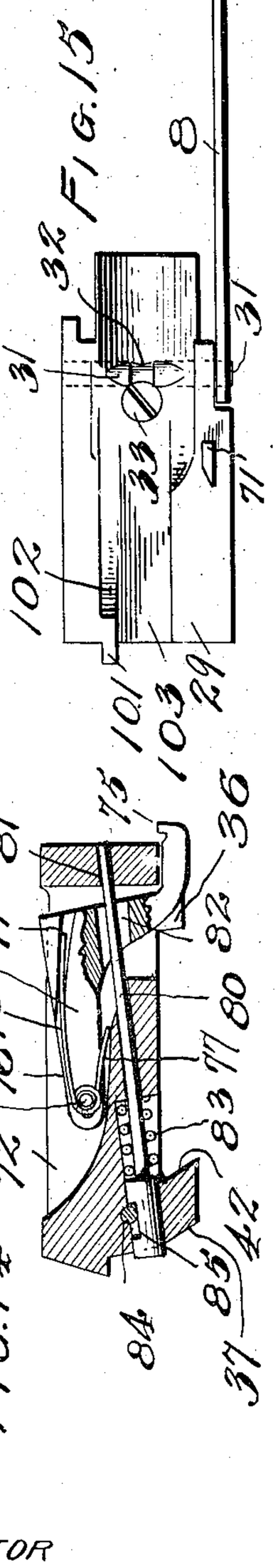

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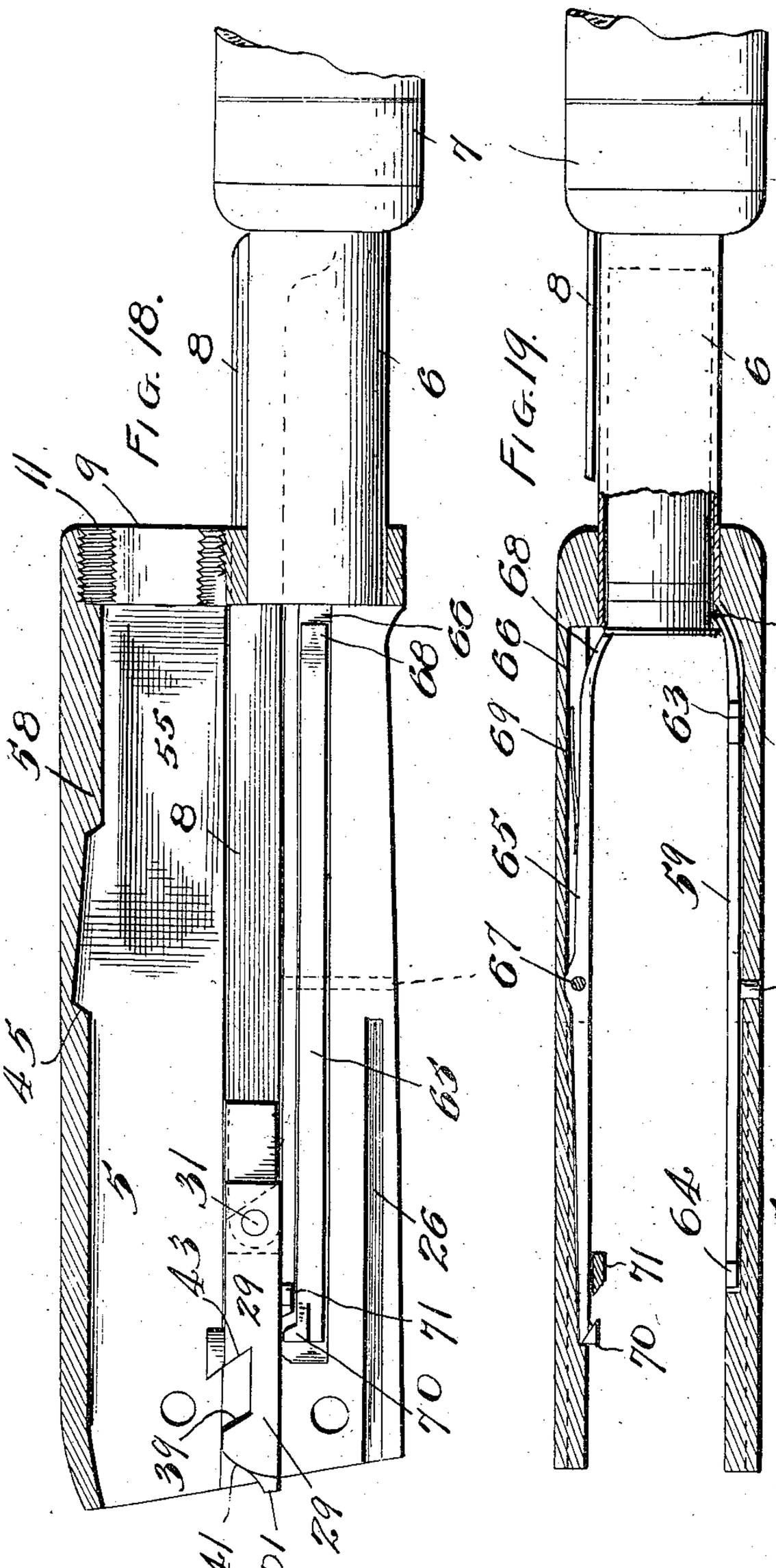
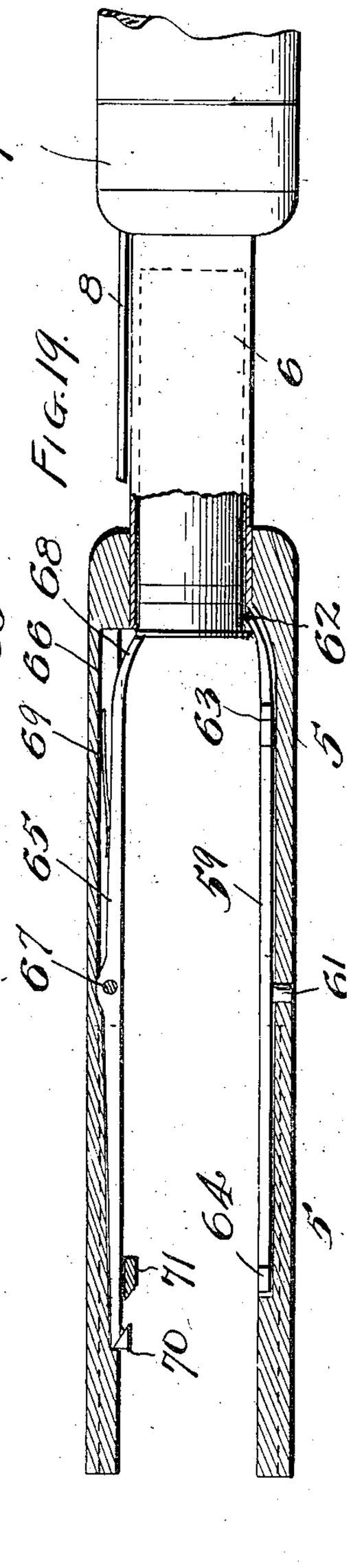
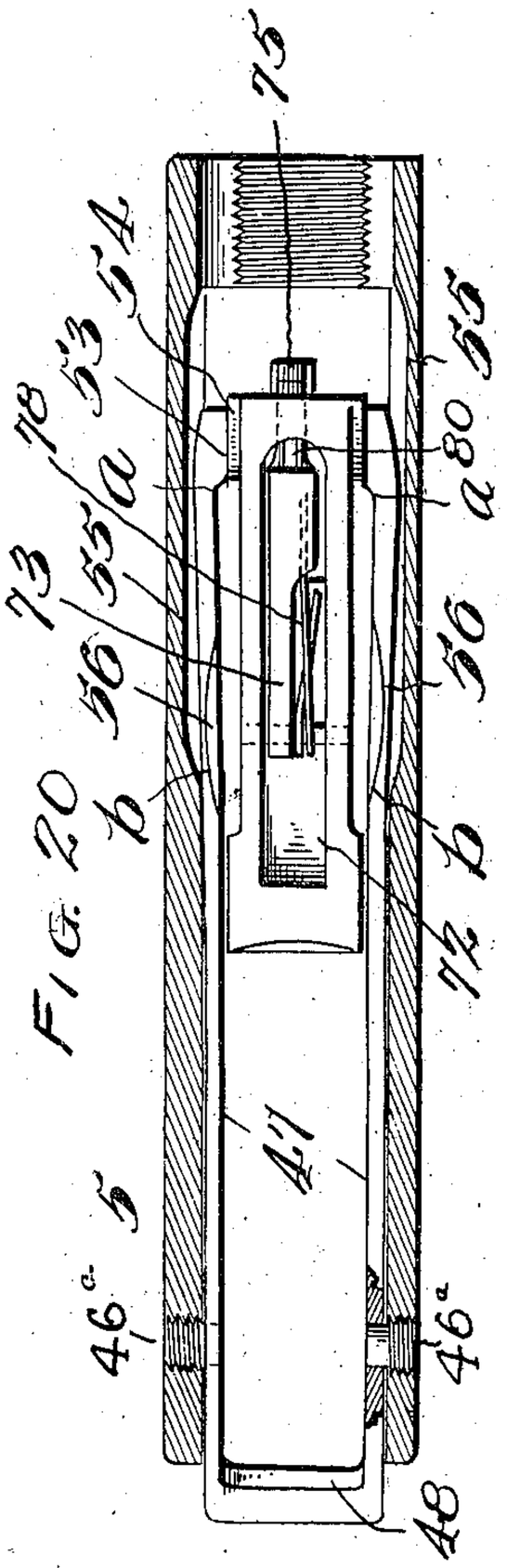
5 SHEETS—SHEET 4.







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5 SHEETS—SHEET 5.

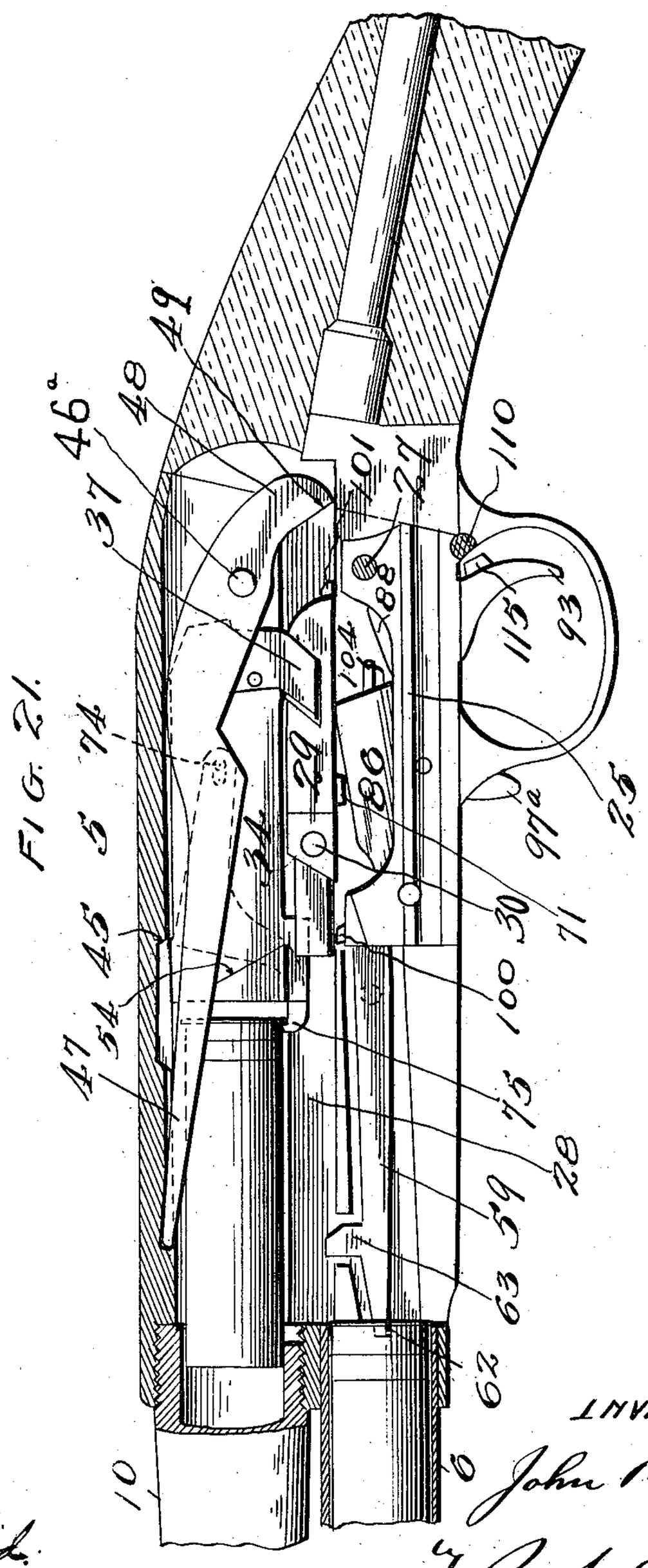

FIG. 21.

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UNITED STATES PATENT OFFICE.

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FIREARM.

1,143,170. Specification of Letters Patent. Patented June 15, 1915.

Application filed November 26, 1913. Serial No. 803,192.

To all whom it may concern:

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

A principal object of this invention is to provide a frame or receiver having solid, unbroken top and sides with a bottom ejection opening. The magazine is filled through the ejection opening. The mechanism is designed to operate properly in connection with a receiver of this character.

The invention also includes a slide mounted to reciprocate in the receiver and a tilting breech-block supported entirely by the slide, with means for positively locking the breech-block in firing position. There is also a carrier actuated by the slide and breech-block in a novel manner. There are also provided two cartridge stops to effectively control the delivery of cartridges from the magazine, in proper relation to the movements of the slide, breech-block and carrier. The extractor has a combined pivotal and longitudinal movement coöperating with the action of the carrier. There is also a slide-lock to lock the slide in firing position and prevent premature return of the slide.

The invention as here shown is especially adapted to shot guns and to a slide action, but many features of the invention may be used in firearms of other classes, and some features may be used with other than a sliding action.

I will now describe one exemplifying structure embodying the invention.

It is to be understood that the invention is capable of embodiment in many different forms.

The objects and advantages of the invention will be further pointed out in connection with this detailed description so far as is necessary to enable persons skilled in the art to understand the same.

Figure 1 is a side elevation of a complete gun embodying the invention. Fig. 2 is a side elevation of the barrel detached. Fig. 3 is an enlarged detail partly in section of the barrel fastening. Fig. 4 is an additional detail on the section line 4 of Fig. 3. Fig. 5 is a detail on section line 5 of Fig. 3. Fig. 6 is a front end view of the barrel fastening nut. Fig. 7 is a longitudinal section of the magazine. Fig. 8 is a vertical longitudinal section, the parts within the receiver being shown, however, in full. Fig. 9 is a vertical longitudinal section, the parts within the receiver being shown in section. Fig. 10 is a top plan of the trigger-plate and associated parts, removed from the gun. Fig. 11 is a vertical longitudinal section of the same. Fig. 12 is a fragmentary section of the hammer, trigger, slide-stop and slide. Fig. 13 is a vertical transverse section through the receiver at the rear of the breech-block. Fig. 14 is a vertical section of the breech-block, showing the extractor and firing-pin. Fig. 15 is a bottom plan of the slide. Fig. 16 is a section through the trigger-plate to show the safety-stop. Fig. 17 is a transverse section of the safety-stop. Fig. 18 is a longitudinal section through the receiver with all moving parts removed except the slide, spring, cartridge-stop, and slide-bar. Fig. 19 is a horizontal section through the receiver with all parts removed except the two cartridge-stops and a fragment of the slide. Fig. 20 is a horizontal section of the receiver showing the end of the breech-block passing through the front end of the carrier. Fig. 21 is a vertical, longitudinal section showing a shell nearly withdrawn from the chamber.

Referring first to Figs. 1 to 7 inclusive, reference character 5 designates the receiver as a whole. In the front end of this is rigidly and, usually, permanently secured the magazine 6, on which is slidably mounted the slide-handle 7, connected by means of slide-bar 8 to the slide within the receiver. The front end of the receiver is provided with an aperture 9, as better shown in Fig. 18, to receive the barrel 10, and the rear end of the barrel and the aperture 9 are provided with coöperating interrupted threads 11. The barrel is also provided with a lug 12, in the rear face of which is a socket 13. The adjacent face of the lug is provided with a slot or channel 14, leading from one side of the lug to the socket. Upon the front end of the magazine is screwed a nut 15, having on its forward end a stud 16. To set up the gun after it has been taken down the rear end of the barrel is inserted in receiver socket 9 and given a quarter-turn, whereupon the rear face of lug 12 is brought in front of nut 15 and stud 16 passes through the slot 14 of the lug and is opposite socket 13. By screw-

ing the nut out, the stud is then caused to enter the socket and the barrel is thus firmly locked to the front end of the magazine and also secured at its base in the receiver. A very strong and rigid barrel support is thus secured. Preferably, also, near the front end of the magazine is secured a yoke 17 fitting about half way around the barrel to further support and locate it in relation to the magazine. In this particular embodiment it will be noticed that the nut 15 also serves as a closure for the forward end of the magazine and has an abutment for the magazine spring 18, the rear end of which engages a follower 19.

The particular mode of fastening the barrel above described is only an exemplification of different structures that can be employed for the same purpose. For instance, the lug 12 might be provided with a screw to engage the end of the magazine and various other changes may be made without departing from the invention.

The receiver 5, as best understood from Figs. 1, 13 and 18, has a solid top 20 and side walls 21, 22. At the bottom, the receiver is open to provide for the location of the trigger plate 23 at the rear end of the receiver, and to provide for the loading and ejection opening 24 at the front end of the receiver. The sides of the trigger plate are provided with ribs 25 (Figs. 8 and 10) and these fit into channels 26 in the inner side walls of the receiver (Fig. 18). The trigger plate is slid into the receiver from the rear and secured by screws 27. The hammer and trigger mechanism carried by the trigger plate will be later described. In the inner walls of the receiver are two channels 28, in which fit the sides of the slide 29. Slide-bar 8 passes through the front wall of the receiver and lies in one of these slots 28. A recess 30 is provided near the front end of the slide to receive the rear end of the slide-bar, and these two parts are detachably connected by a transverse pin 31 mounted in the slide. The outer end of this pin engages a hole in the slide-bar, as best shown in Figs. 15 and 18. A central portion of the pin is also exposed at the bottom of the slide and the pin is here provided with an annular groove 32 engaged by the head of screw 33. This screw is exposed through the ejector opening when the slide is forward, and by slightly withdrawing the screw and pushing pin 31 inward its end is withdrawn from the slide-bar to disconnect the slide.

Breech-block 34 rests on top of the slide and is supported thereby. At the front end the upper face of the slide has a shallow channel 35 in which fits a lug 36 of the breech-block, providing a lateral guide for the front end of the breech-block in relation to the slide. At the rear, the breech-block has a lug or hook 37 adapted to enter a recess in the slide. The rear face of this lug constitutes a cam coöperating with a cam 39 on the slide. The bottom 40 of lug 37 is adapted to rest upon the rear end 41 of the slide when the breech-block is locked, as will appear. The front face 42 of lug 37 constitutes a cam to coöperate with cam face 43 of the slide. The faces 39, 40 and 42 of the breech block lug extend the full width of the block and have a full width engagement with coöperating parts of the slide, which provides ample wearing surface and ample lateral stability. The upper rear end 44 of the breech-block is adapted to engage a shoulder 45 in the top of the receiver to lock the breech-block in firing position. This locking engagement of the breech-block is effected by the slide, as will appear.

The carrier 46 is pivoted in the receiver upon studs or screws 46ª and consists of two tines or spring side pieces 47, connected only by cross-piece 48 at the rear, as best understood from Figs. 8, 9 and 20. The bottom 49 of this cross-piece coöperates with the rounded upper rear surface 50 of the slide. The carrier arms also have cams 51 coöperating with cams 52 on the slide. In certain positions, the breech-block 34 passes between the arms of the carrier. The front ends of these carrier arms are provided with inward projections, best shown in Fig. 20, and such projections have slanting faces *a* which coöperate with cams 54 on the breech-block. As the breech-block passes forward between the arms of the carrier, these arms spring outward to permit such passage of the block, and to provide for this outward movement of the arms the receiver is provided with recesses 55, opposite the arms when they are in approximately horizontal position. The upper inner faces of the carrier arms are slightly beveled at the points 56, and the lower inner faces of the arms are similarly beveled at 57. The top of the receiver, to the rear of the barrel, is provided with a guide or rib 58 to engage the shell-head during part of its movement, as will be described. After the shell-head leaves the rib it engages the carrier arms and the retarding, wedging effect thus exerted by the arms upon the upper edge of the shell-head in connection with the pull of the extractor, as will be more fully described, assists in ejecting the shell.

There are provided to control the movement of cartridges from the magazine two stops, which will be designated, simply for the purpose of identification, as a spring-stop and a positive-stop. The positive-stop-bar 59 is located in a channel 60 in the right wall of the receiver, is pivoted at 61,

and at its forward end the bar carries the inwardly projecting stop 62. This stop moves up and down in its channel slightly forward of the shell-heads when they rest against the spring-stop, or in the position shown in Fig. 19. To operate this stop its bar 59 carries near the forward end a cam 63 projecting upward into the path of the slide when the slide is retracted, and near its rear end the bar carries a cam 64 similarly projecting into the path of the slide when the slide is in closed position. In the other wall of the receiver is the spring-stop-bar 65 located in a channel 66, pivoted at 67 and carrying at its forward end the inwardly-curved stop proper 68, engaging the shell-head in the position shown in Fig. 19. A spring 69 urges the stop to engaged position. At its rear end the stop-bar 65 carries a cam 70 coöperating with a cam-lug 71 on the slide. Fig. 19, which is a section in a horizontal plane looking down, does not show the slide but shows the cam-lug 71 projecting downward from the slide to engage cam 70. This lug also clearly appears in its proper position on the slide in Figs. 8 and 15.

The breech-block is longitudinally slotted, and in this slot 72 is located the extractor 73. The rear end of the extractor is slotted to slidably and pivotally engage pin 74. The extractor hook 75 projects through a channel in lug 36 of the breech-block. The extractor is urged upward by wire-spring 76 (Fig. 14) coiled around pivot 74 and having a short end 77 resting on the bottom of breech-block channel 72, and a long end 78, the end of which is slightly curved toward the center of the breech-block so that it may be sprung into a groove 79 in one side of the extractor-piece 73, and when so inserted will retain itself in position.

The firing-pin 80 is located in a hole 81 in the breech-block and passes through an aperture 82 in the extractor-piece. The rear end of the firing-pin is enlarged and a spring 83 compressed between this enlargement and the breech-block urges the pin rearward. The firing-pin is held in by transverse-pin 84 engaging a slot 85 in the enlarged rear end of the firing-pin.

The operations of filling the magazine, loading and ejecting shells may now be described: The magazine is filled through the ejection opening 24 when the slide and breech-block are in forward position. Each cartridge inserted into the magazine is held by the spring-stop 68, which springs in behind the shell. The breech-block is tilted up at its rear end so that it engages shoulder 45 in the receiver and is positively locked in firing position. It is so held by upper rear face 41 of the slide resting under bottom face 40 of the breech-block-lug 37. The carrier is free and lies in substantially horizontal position, as shown in Fig. 8, with the front ends of its arms slightly behind cams 54 of the breech-block. The positive cartridge stop 62 is held down out of the way of the cartridges in the magazine by cam 63 engaging the underside of the slide. In this closed position of the slide and breech-block, the breech-block is positively locked by member 41 of the slide lying below lug 37 of the breech-block and thus holding the upper rear end of the breech-block in engagement with shoulder 45 in the receiver. In loading, the first rearward movement of the slide brings member 41 of the slide away from under lug 37 and permits the rear end of the breech-block to be positively pulled down by cam-face 43 of the slide engaging face 42 of lug 37. About the same time, the front ends of the carrier-arms 47 engage cams 54 of the breech-block and the front end of the carrier is thrown up. The carrier stays in this position until the slide approaches the rear end of its stroke and then member 50 of the slide strikes cross-piece 49 of the carrier, raising it and throwing the front ends of the carrier-arms down to the position shown in Fig. 9. Some time before the slide reaches the rear end of its stroke, it engages positive-stop-cam 64, and raises the positive-stop 62 into the path of the second cartridge in the magazine. Some time after this, cam-lug 71 on the slide engages cam 70 of the spring cartridge stop, and just as the slide is at the limit of its rearward movement the spring-stop is withdrawn from the first cartridge in the magazine and the magazine-spring snaps this cartridge onto the arms of the carrier. The second cartridge in the magazine moves back until its head engages the positive-stop. Forward movement of the slide then causes slide-cams 52 engaging carrier-cams 51 to quickly throw up the front end of the carrier, elevating the cartridge into line with the chamber in front of the breech-block. At about the same time the spring cartridge-stop is released and moves to its active position in relation to the magazine. Further movement of the slide causes the breech-block, engaging the rear end of the cartridge, to push the cartridge into the chamber. During this forward movement of the breech-block it lies between the carrier arms. They are forced into the channels 55 to allow the front end of the breech-block to pass, and as soon as cams 54 pass the front ends of the carrier-arms the carrier-arms snap in behind the cams. Toward the end of the forward movement of the slide it engages positive-stop-cam 63 and depresses the positive-stop 62, releasing the cartridge which is now first in the magazine, and the cartridge thereupon moves slightly to the rear until it engages the spring-stop. The final movement of the slide causes its cam

39, coöperating with cam 38 on the breech-block, to elevate the rear end of the breech-block to again engage shoulder 45 in the receiver, and thereafter face 41 of the slide comes under the bottom surface 40 of the breech-block-lug and positively locks the breech-block in firing position, as shown in Fig. 8. In pushing the cartridge into the chamber, extractor 75 snaps into engagement with the shell base. The extractor is then in rearward position in relation to the breech-block, as shown in Fig. 9. After firing, when the slide is moved back, the parts operate as before, but in this case the extractor pulls back the fired shell. During the first part of its backward movement, the upper edge of the shell-base slides under rib or guide 58 in the receiver. After a short rearward movement, the upper edge of the shell-head engages the beveled lower surfaces 57 of the carrier-arms, which are now in elevated position. These portions of the carrier arms force the head of the shell down and exert a sort of wedging effect upon the shell head as it moves toward the rear. The top of the shell is thus retarded while the bottom is pulled back by the extractor, and as soon as the front end of the shell leaves the chamber the shell is snapped down and ejected through the opening 24. The quick downward movement of the carrier occurring at about the same time assists in ejecting the shell. A new cartridge is thrown upon the carrier, as above described, and the actions may be repeated until it is necessary to refill the magazine.

The hammer 86 is pivoted at 87 in the trigger-plate, and a hammer-strut 88 is pivoted to the hammer at 89. The trigger-plate is bored from the rear, and in this bore is main spring 90 secured in position by pin 91. The spring has a follower 92, and the rear end of strut 88 rests in a slight depression in the forward face of this follower. The trigger 93 is pivoted in the trigger-plate at 94, and the forward extension 95 of the trigger engages trigger-notch or cock-notch 96 on the hammer. Pivoted also on the pin 94 is a piece 97, which performs several functions, but may be identified as a slide lock. This has a sear notch 98 coöperating with a lug or tooth 99 on the hammer. At the forward end, piece 97 has a slide lock or stop 100 engaging behind a shoulder 101 at the rear end of the slide. Just forward of this shoulder the slide has a groove 102 to accommodate stop 100, and the rear end of this groove is formed into a cam 103 to depress the stop just before the slide reaches its foremost position. The slide lock is provided with a strong spring 104, one end of which is inserted in a hole in the stop. The other end of this spring lies over the rear end 105 of the stop-piece and extends above a cam 106 formed on the upper face of strut 88. The spring is flexed and retained in position by a pin 107. The stop-piece 97 is also provided with a weak spring 109 which ordinarily holds slide-stop 100 in active position. The strong spring 104 becomes effective to overcome the effect of the weak spring when the hammer is released for firing. Thereupon, cam 106 of strut 88 engages the overlying end of spring 104 and urges slide-stop 100 down with sufficient energy to overcome the effect of the weak spring, unless, before the cartridge actually fires, the slide is improperly urged backward, as will be explained. The stop piece 97 also has a downward finger projection 97ª exposed at the front of the trigger-guard. This permits the stop to be easily manipulated for unlocking the breech without firing the gun.

In firing position, when the breech-block is locked in the position shown in Fig. 8, the hammer rests against the rear face of the breech-block, and also against the rear end of the slide, so that at the first rearward movement of the slide the hammer is withdrawn from engagement with the breech-block and the firing pin, and cannot again come into contact with the firing pin until the breech-block is again locked in firing position. Rearward movement of the slide depresses the hammer, as clearly understood from Fig. 9, until the trigger extension 95 engages behind the notch 96. The cocking of the hammer also depresses it sufficiently to cause the tooth 99 to engage the sear notch 98 of the slide-stop, which may be considered, in a sense, a sear, and when the hammer tooth 99 engages this sear-notch the trigger-notch 96 is slightly in advance of the end of the trigger extension 95, as clearly shown in Fig. 11. In the ordinary use of the arm, just before the slide reaches its foremost position, its cam 103, as shown in Fig. 12, depresses the front end of the slide-stop, releasing tooth 99 from sear-notch 98. Thereupon, the hammer springs up slightly until trigger-notch 96 engages the end of trigger-extension 95. The final movement of the slide brings the rear end of lug 101 in front of stop 100, and thereupon under the influence of spring 109 the stop springs up behind the slide and positively locks it in firing position, and the shooter is thus protected in case of a hang-fire, because if he attempts to pull back the slide while pulling the trigger and before the cartridge explodes, the rearward pressure of the slide upon stop 100 will hold the stop in engaged position and prevent the slide from moving back, although at the same time the stop is urged to move to inactive position by spring 104, which has been tensed by cam 106 as the hammer moved up. But as soon as the cartridge is fired, the recoil of the gun will remove the pressure exerted against

the stop and the stop will drop out of the way of the slide by the action of the spring 104.

When the slide and breech-block are in proper firing position the gun may be fired in the ordinary way by pulling the trigger, releasing extension 95 from notch 96, and thereupon the main spring will act on strut 88 to strike the hammer forcibly against the firing pin. The gun may also be fired by pulling the trigger during the forward movement of the slide. This will hold the trigger-extension free from the trigger-notch, and the hammer will then be released for firing by the action of the cam 103 on the slide, depressing the stop 100 and releasing sear-notch 98 from hammer-tooth 99.

A trigger safety-stop is provided, consisting of a stop-pin 110, mounted in a transverse bore 111 in the trigger-plate to the rear of the trigger. This pin has a rib 112 engaging a slot in the trigger-plate to prevent rotation of the pin. A spring plunger 113 is provided to engage a notch in the pin and hold it in safety position, and also by frictional engagement with the pin holds it in firing position with sufficient firmness. The pin has a slot 114 which accommodates trigger-lug 115 when in firing position, but when in safety position this trigger-lock is out of register with the slot and the trigger is prevented from moving.

I claim:—

1. In a firearm, the combination of a receiver having a socket provided with interrupted threads, a magazine rigidly secured to the receiver, a barrel having interrupted threads to engage the receiver socket by rotative movement, a nut screwed upon the forward end of the magazine and provided with a stud, and a lug secured to the barrel and having a slot to admit the stud and limit rotative movement of the barrel, and a socket to receive the stud and firmly lock the barrel to the magazine and receiver.

2. In a firearm, the combination of a receiver, a barrel detachably engaging the receiver, a lug on the barrel, a tubular magazine rigidly fixed to the receiver, a spring within the magazine and a nut screwed upon the front end of the magazine to engage said lug and lock the barrel, said nut also serving as an abutment for said spring.

3. In a firearm, the combination of a receiver, a reciprocating slide therein, a breech-block supported thereon, a carrier having arms, one located at each side of the breech-block, and means carried by the breech-block and slide for actuating the carrier.

4. In a firearm, the combination of a receiver, a reciprocating slide therein, a breech-block supported on the slide and having wide lateral slide-engaging faces, a carrier movably mounted within the receiver and having arms between which the breech-block is adapted to pass, means carried by the breech-block and slide for raising and lowering the carrier, and means to permit the block to pass between the carrier arms in its forward movement.

5. In a firearm, the combination of a receiver, a barrel, and a magazine communicating with the receiver, a slide, a breech-block supported upon the slide and movable in relation thereto, a carrier pivoted in the receiver and having arms at the sides of the receiver, and means carried by the slide and breech-block for operating the carrier.

6. In a firearm, the combination of a receiver having solid top and sides and a bottom-ejection opening, a barrel, a magazine communicating with the receiver near the bottom, a slide within the receiver, a breech-block supported upon the slide by means of wide lateral surfaces, and a carrier pivoted rearwardly in the receiver and having arms at the sides of the receiver, means on the breech-block to elevate the front ends of said arms when the breech-block moves rearwardly, and means by which the breech-block passes between said arms in moving forward.

7. In a firearm, the combination of a receiver having solid top and sides and a bottom-ejection opening, a barrel, a magazine, a reciprocating slide, a breech-block supported thereon and moving in relation thereto, a carrier pivoted rearwardly in the receiver and having spring arms adjacent to the side walls of the receiver, means carried by the breech-block to raise the front end of the carrier in the early rearward movement of the breech-block, means by which the slide causes the carrier arms to be depressed at the rear end of the slide movement, and means by which the slide causes the carrier arms to be raised in the early forward movement of the slide.

8. In a firearm, the combination of a receiver having solid top and sides and a bottom-ejection opening, a barrel, a magazine, a reciprocating slide, a breech-block supported thereon and moving in relation thereto, a carrier pivoted rearwardly in the receiver and having spring arms adjacent to the side walls of the receiver, means carried by the breech-block to raise the front end of the carrier in the early rearward movement of the breech-block, means by which the slide causes the carrier arms to be depressed at the rear end of the slide movement, means by which the slide causes the carrier arms to be raised in the early forward movement of the slide, and means for permitting the breech-block to pass between the carrier arms toward the end of its forward movement.

9. In a firearm, the combination of a receiver, a barrel, a magazine, a slide, a

breech-block, a carrier, and two cartridge stops, one actuated by the slide near each end of the slide movement, and the other actuated by the slide only near the end of its rearward movement.

10. In a firearm, the combination of a receiver, a barrel and magazine, a slide, a breech-block and a carrier, a positive cartridge stop pivoted at one side of the receiver, means by which rearward movement of the slide moves said stop to active position and forward movement of said slide moves said stop to inactive position, another cartridge stop engaging the cartridges in a slightly different position, and means by which rearward movement of the slide moves said stop to inactive position.

11. In a firearm, the combination of a receiver, a barrel, a magazine, a reciprocating slide, a breech-block thereon, a carrier having arms at the sides of the receiver, means for withdrawing the shell from the barrel with its upper side in engagement with the carrier, means for moving the carrier down to eject the shell, means for placing a fresh cartridge above the carrier, means for elevating the carrier, arms carrying the cartridge in line with the chamber, and means for permitting the breech-block to pass between the carrier arms in placing the cartridge in the chamber.

12. In a firearm, the combination of a receiver, a barrel, a magazine, a slide, a breech-block thereon, a carrier pivoted near the rear of the receiver and having arms at the sides thereof, an extractor carried by the breech-block, means on the breech-block to elevate the front ends of the carrier arms whereby the shell is held during its rearward movement between the extractor and the bottoms of said arms, means carried by the slide to move the carrier arms down to eject the shell, cartridge stops coöperating with the slide to deliver a fresh cartridge above the carrier arms, means carried by the slide to elevate said arms to present the cartridge to the chamber, and means by which the breech-block passes between the carrier arms in its forward movement.

13. In a firearm, the combination of a receiver, a barrel, a magazine, a slide, a breech-block thereon, a carrier pivoted near the rear of the receiver and having arms at the sides thereof, said arms having converging portions, an extractor carried by the breech-block, means on the breech block to elevate the front ends of the carrier arms whereby the shell is held during its rearward movement between the extractor and the bottoms of said arms, means carried by the slide to move the carrier arms down to eject the shell, cartridge stops coöperating with the slide to deliver a fresh cartridge above the carrier arms, means carried by the slide to elevate said arms to present the cartridge to the chamber, and means by which the breech-block passes between the carrier arms in its forward movement.

14. In a firearm, the combination of a receiver, a barrel, a magazine, a slide, a breech-block thereon, a carrier pivoted near the rear of the receiver and having arms at the sides thereof, said arms having converging portions, a shell-guiding surface in the receiver rearward of the chamber, an extractor carried by the breech-block, means on the breech-block to elevate the front ends of the carrier arms whereby the shell is held during its rearward movement between the extractor and the bottoms of said arms, means carried by the slide to move the carrier arms down to eject the shell, cartridge stops coöperating with the slide to deliver a fresh cartridge above the carrier arms, means carried by the slide to elevate said arms to present the cartridge to the chamber, and means by which the breech-block passes between the carrier arms in its forward movement.

15. In a firearm, the combination of a receiver, a slide, a carrier, a breech-block, a firing pin therein, an extractor-piece having an extractor-hook projecting at the lower front face of the breech-block, said piece having a slot engaging a pivot pin in the breech-block above the firing pin, said extractor-piece being apertured to accommodate the firing pin.

16. In a firearm, the combination of a receiver, a slide, a carrier, a breech-block, a firing pin therein, an extractor-piece having an extractor-hook projecting at the lower front face of the breech-block, said piece having a slot engaging a pivot pin in the breech-block above the firing pin, an extractor-spring coiled about said pin and having an end engaging against the breech-block, and a longer, incurved end engaging the curve in said extractor-piece.

17. In a firearm, the combination of a receiver, a slide, a breech-block, a carrier having arms at the sides of the receiver, the receiver being provided with a bottom ejection-opening, the receiver walls being recessed to permit passage of the head of the breech-block between the front ends of the carrier during the forward movement of the slide.

18. In a firearm, the combination of a receiver, a slide, a breech-block, a carrier, a trigger-plate, a hammer pivoted therein, a spring-operated strut connected with the hammer, a slide lock to coöperate with the slide, and means actuated by said strut to operate the slide lock.

19. In a firearm, the combination of a receiver, a slide, a breech-block, a carrier, a trigger-plate, a hammer pivoted therein, a strut pivoted to the hammer, a main spring actuating the strut, a slide lock to engage

the slide, a cam on said strut, and a spring actuated by the cam to urge the slide lock to disengaged position.

20. In a firearm, the combination of a receiver, a slide, a breech-block, a carrier, a trigger-plate, a hammer pivoted therein, a strut pivoted to the hammer, a main spring actuating the strut, a slide lock to engage the slide, a cam on said strut, a spring actuated by the cam to urge the slide lock to disengaged position, a spring fastened to the slide lock and having a part turned in to engage said cam.

21. In a firearm, the combination of a receiver, a magazine, a slide handle thereon, a slide within the receiver, a slide bar connected to the handle and entering the receiver, a pin mounted in the slide for lateral movement and adapted to engage a hole in the slide bar, said pin being exposed at a point below the slide, and means for fastening the pin in engagement with the slide bar.

22. In a firearm, the combination of a receiver, a slide, a trigger-plate, a hammer thereon having a trigger-notch, a trigger having an extension to engage said trigger-notch, a slide lock piece having a sear-notch, a tooth on the hammer to engage said notch, said sear-notch and tooth being placed so that when in engagement there is clearance between the trigger and its notch, and springs for actuating the slide lock piece, a finger-piece extending downwardly from the slide lock piece for releasing the slide in manipulating the arm.

23. In a firearm, the combination of a receiver, a slide, a trigger-plate, a hammer thereon having a trigger-notch, a trigger having an extension to engage said trigger-notch, a slide lock piece having a sear-notch, a tooth on the hammer to engage said notch, said sear-notch and tooth being placed so that when in engagement there is clearance between the trigger and its notch, and springs for actuating the slide lock piece, a slide stop member carried by said slide-lock piece, and a cam carried by the slide to actuate said member.

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Witnesses:
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