

L. SCHMEISSER.
AUTOMATIC FIREARM.
APPLICATION FILED JUNE 1, 1908.

956,431.

Patented Apr. 26, 1910.

3 SHEETS—SHEET 1.

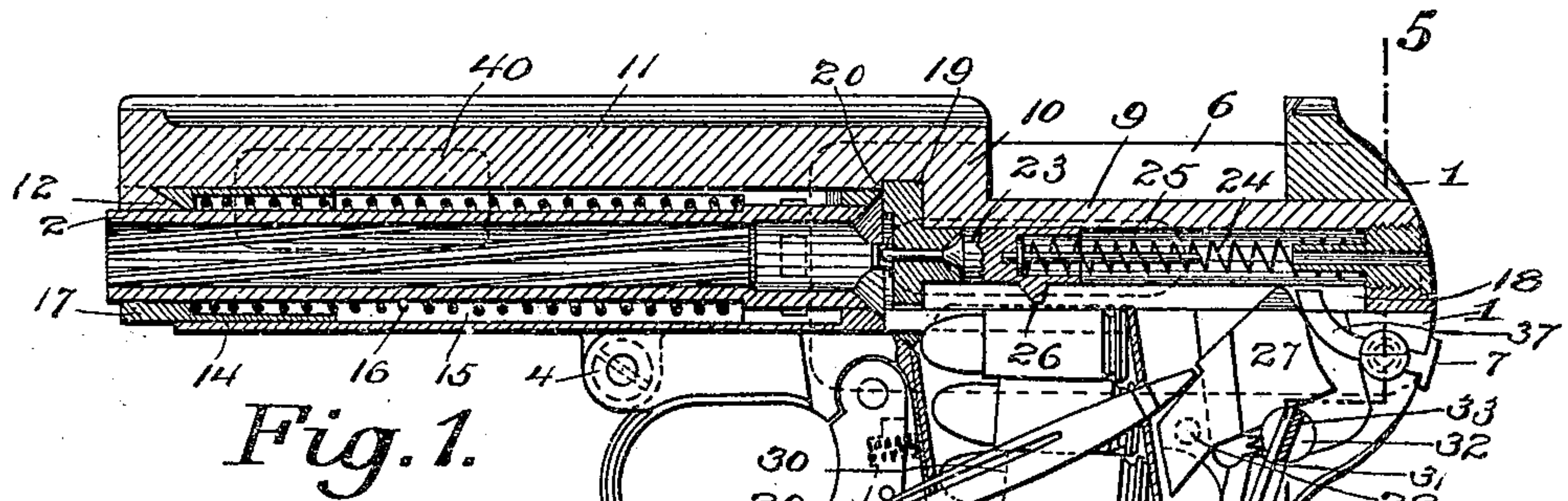


Fig. 1.

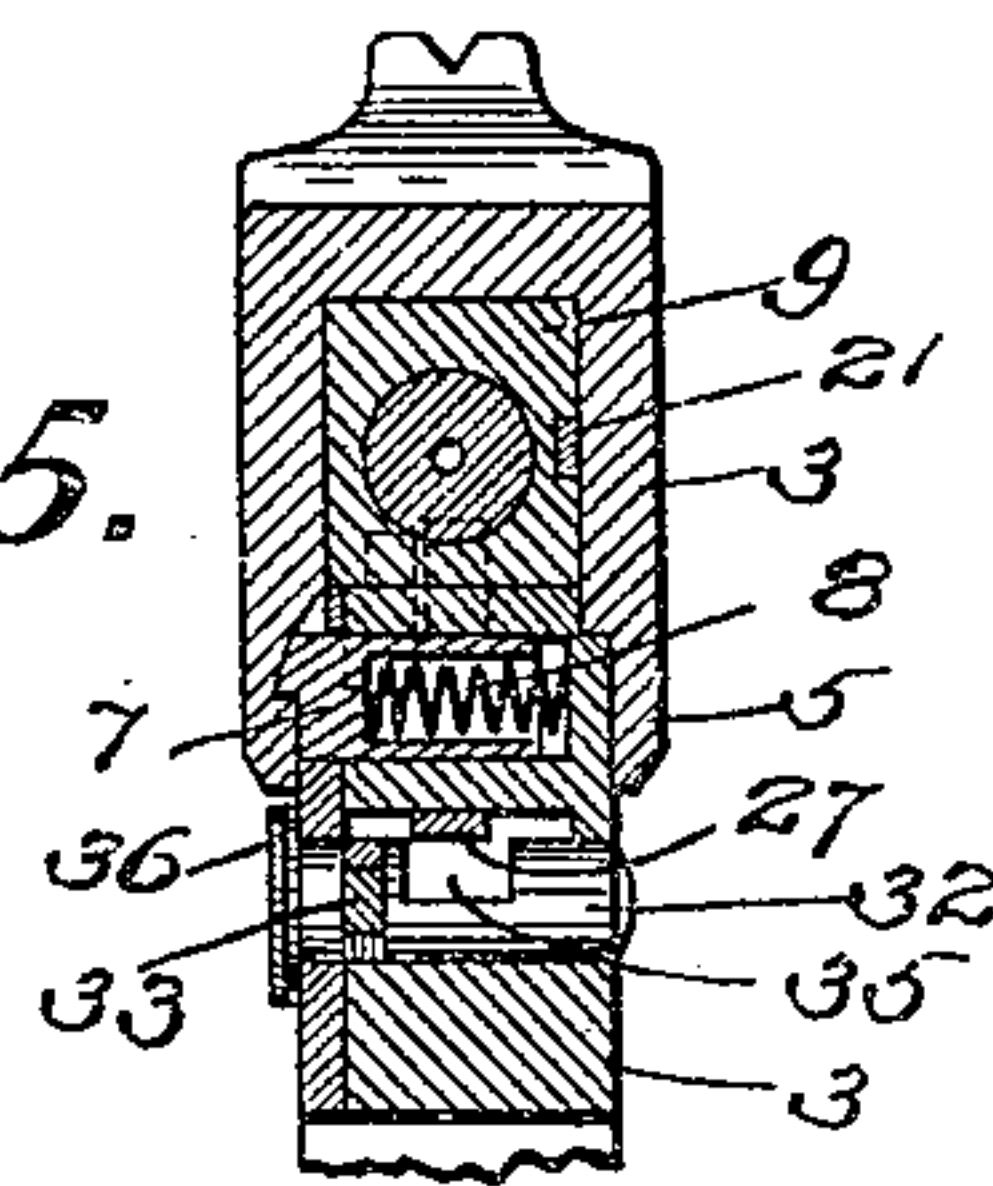


Fig. 5.

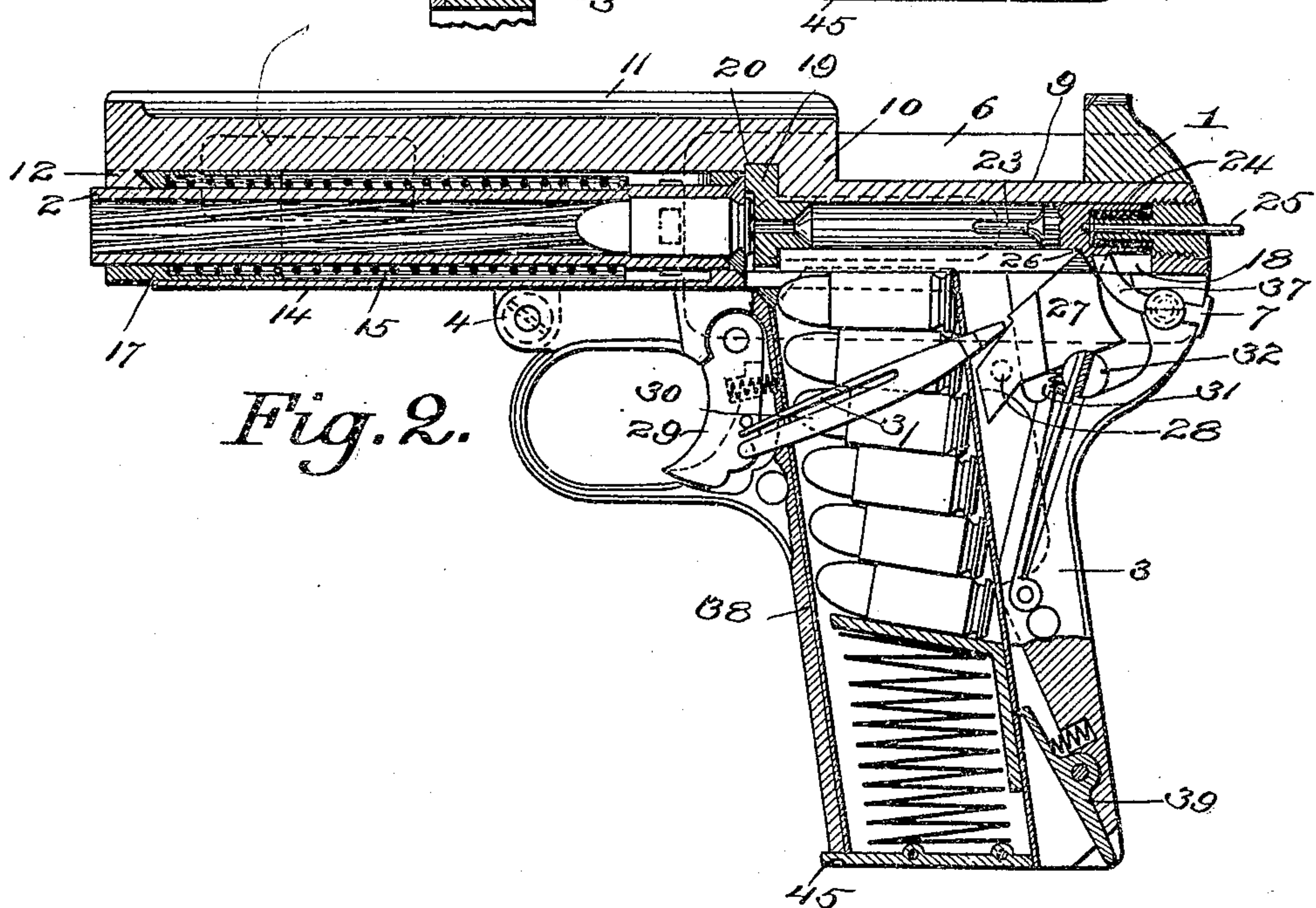


Fig. 2.

WITNESSES

J. M. Fowler Jr.
E. H. Medebraund

INVENTOR

Louis Schmeisser
by Georg & Massis
ATTORNEYS

L. SCHMEISSER.
AUTOMATIC FIREARM.
APPLICATION FILED JUNE 1, 1908.

Patented Apr. 26, 1910.
3 SHEETS—SHEET 2.

956,431.

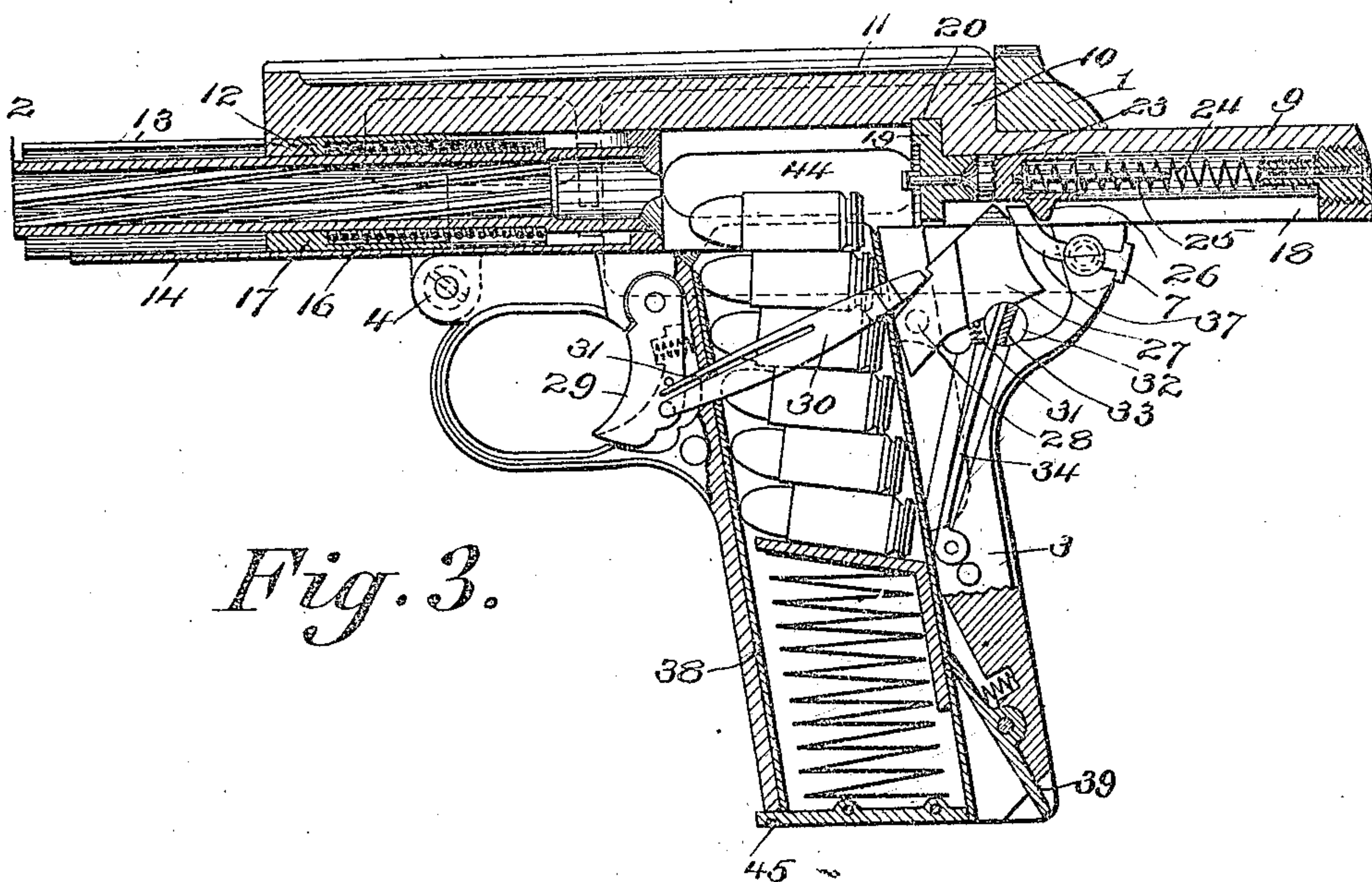


Fig. 3.

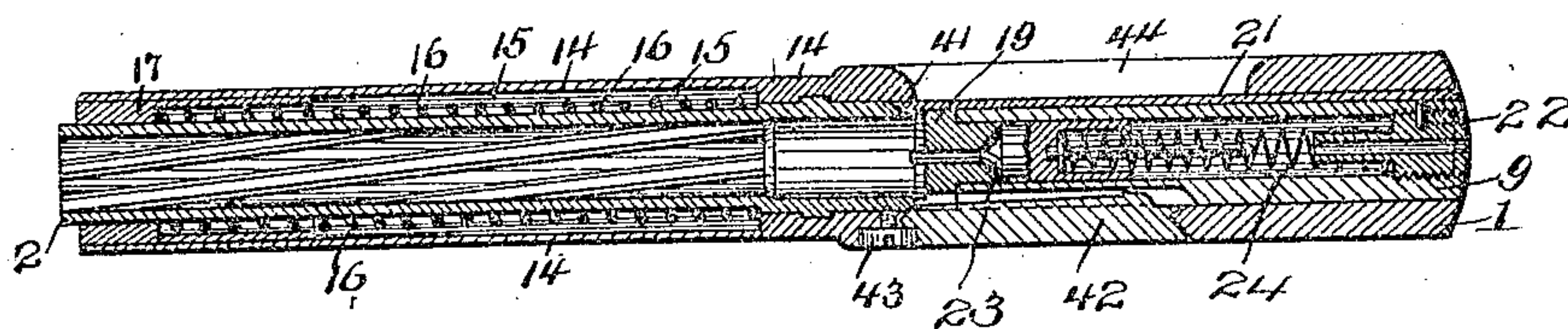


Fig. 4.

WITNESSES

J. M. Fowler
E. C.ildebrand

INVENTOR

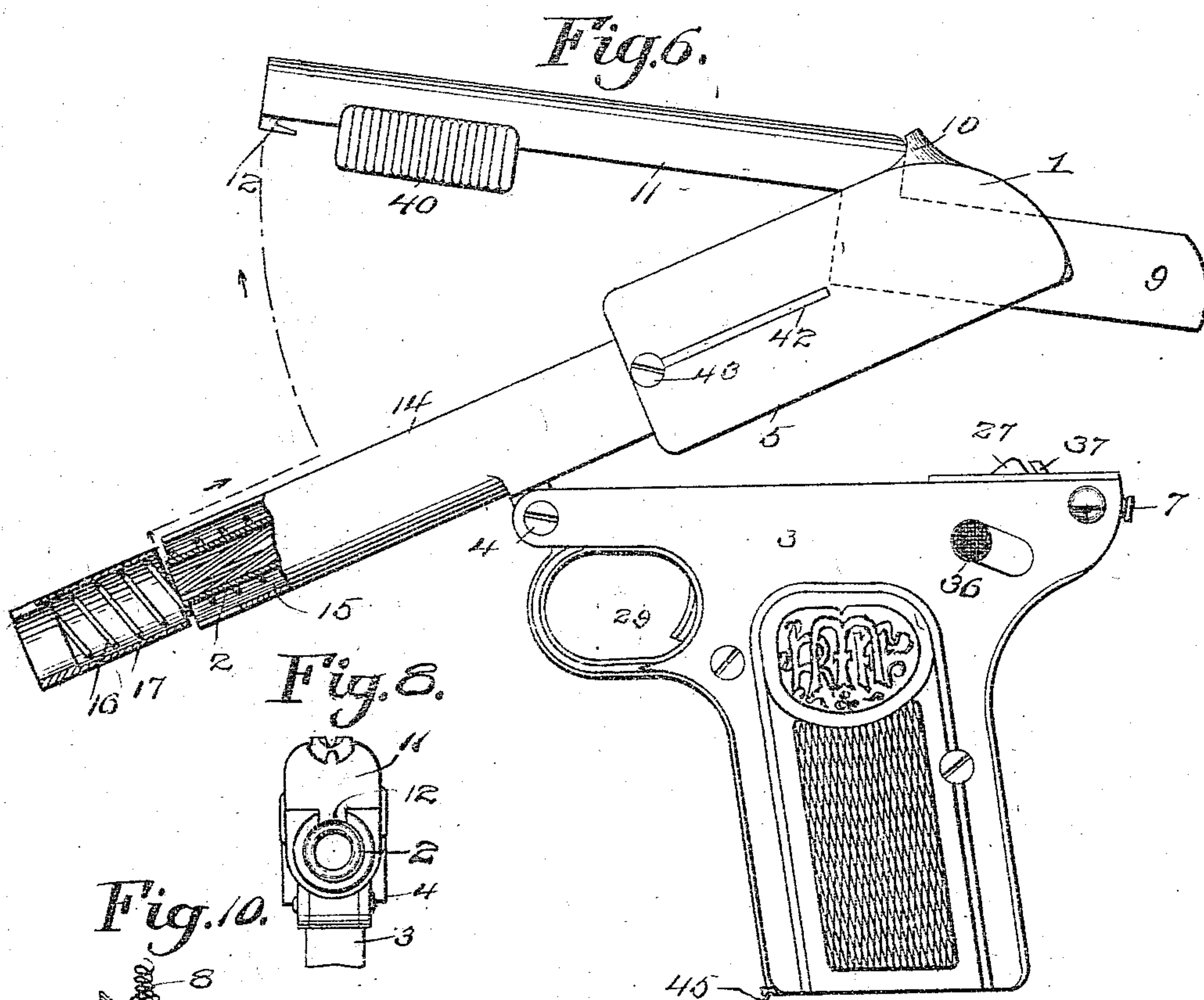
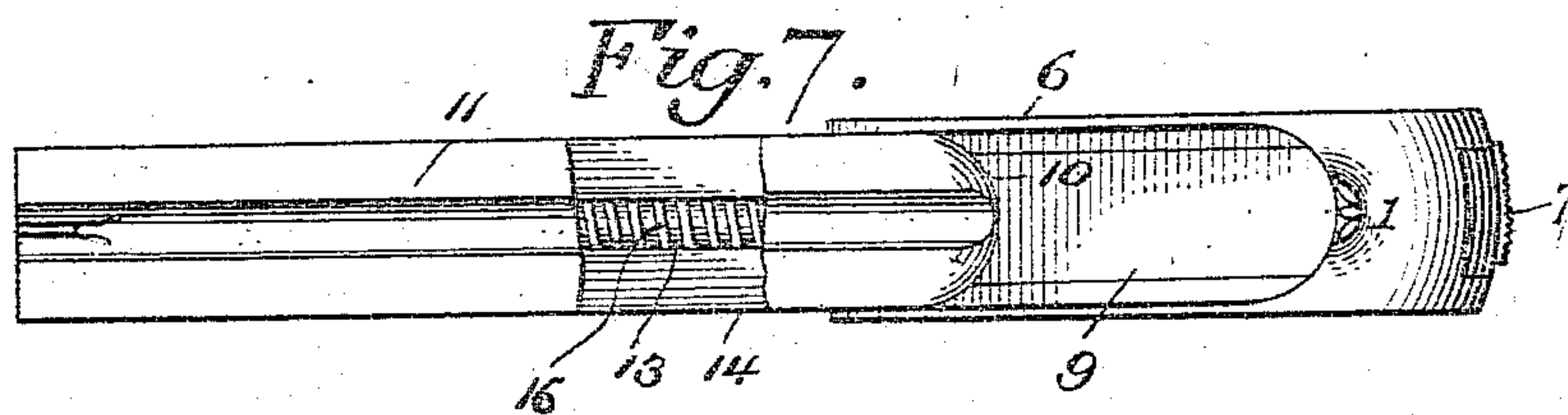
Louis Schmeisser
by *Georgio X Massie*
ATTORNEYS

L. SCHMEISSER.
AUTOMATIC FIREARM.
APPLICATION FILED JUNE 1, 1908.

956,431.

Patented Apr. 26, 1910.

3 SHEETS—SHEET 3.



WITNESSES

J. M. Fowler Jr.
E. O. Keldstrand

INVENTOR

Louis Schmeisser
by Georgii Massis
ATTORNEYS

UNITED STATES PATENT OFFICE.

LOUIS SCHMEISSER, OF SUHL, GERMANY, ASSIGNOR TO RHEINISCHE METALLWAAREN-
UND MASCHINENFABRIK, OF DUSSELDORF-DERENDORF, GERMANY.

AUTOMATIC FIREARM.

956,431.

Specification of Letters Patent.

Patented Apr. 26, 1910.

Application filed June 1, 1908. Serial No. 435,922.

To all whom it may concern:

Be it known that I, LOUIS SCHMEISSER, engineer, a subject of the German Emperor, residing at Suhl, Thuringia, Germany, have
5 invented certain new and useful Improvements in Automatic Firearms; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art
10 to which it appertains to make and use the same.

My invention relates to automatic fire arms in which the loading, the closing of the breech, and the cocking of the arm are ef-
15 fected by the gas pressure from the explosion.

To secure a non-interference with the utilization of the full force of the explosion in the propulsion of the projectile, and an
20 entire absorption of the shock of recoil in the loading operation, calls for a certain relation and proportion of the parts as to mass and weight, which has hitherto not been practically attained in the case of pistols by
25 reason of other conditions necessary to be considered such as safety, convenience and balance of the arm.

Looking to the question of safety, it is of the greatest importance to insure against
30 the projection of the recoiling parts to the rear into the face of the shooter. A usual method of guarding against such accidents has been to completely close the receiver at its rear end so that the movement of the
35 parts to the rear under recoil is limited by the solid rear end of the receiver. As this construction entails the elongation and rearward overhang of the pistol to such an extent as to detract from the convenient shape
40 of the arm for use and for carrying in the pocket or holster, it has been proposed to reduce the overhang by shortening the breech bolt or slide so as to require a less distance between the rear of the barrel and
45 the rear wall of the receiver. This expedient is open to the serious objection that the consequent reduction in weight of the breech bolt means less inertia resistance and either a quicker recoil with leakage of the
50 gases, or requires the resistance of a stronger return spring with resultant forcible closing of the breech accompanied by a disadvantageous shock. It is recognized, in this connection, moreover, that, in automatic fire

arms of this type, certainty of action and 55 durability of the arm are enhanced if the weight of the recoiling parts be increased rather than in any measure diminished.

Having these conditions in view, the objects of the present invention are to obtain 60 the necessary weight of parts and length of recoil without exceeding the limits admissible for the length and weight of the arm, and at the same time, to guard in the most certain way against the accidental projection 65 of the recoiling parts to the rear beyond the proper limits. It is also important in arms of this character to provide for the dismounting and cleaning of the same in the most convenient manner, without special 70 tools and in the shortest time possible; and my invention realizes these objects to the fullest degree along with a considerable reduction in the cost of manufacture, due to simplicity of construction. 75

The invention, as hereinafter particularly set out in the claims, will now be fully described in connection with the accompanying drawings showing by way of illustration one embodiment of the same, in which drawings, 80

Figure 1 is a vertical longitudinal section with the chamber empty, the magazine full, and the breech closed; Fig. 2 is a similar view showing a cartridge in the chamber, and the pistol cocked ready for firing; Fig. 85 3 is a similar view, after firing, showing the breech bolt in its rearmost position; Fig. 4 is a horizontal section through the barrel and breech bolt; Fig. 5 is a vertical transverse section on the line 5—5 of Fig. 1; Fig. 90 6 is a side elevation of the arm showing the manner of dismounting the arm; Fig. 7 is a top plan view; Fig. 8 is a front view; and Figs. 9 and 10 are details of subordinate parts. 95

As shown, by way of example, the receiver 1 is fixed to the barrel 2 and hinged to the frame 3 by the hinge pin or screw 4 in such manner as to enable it to be tilted in a vertical plane. The receiver which is open to the 100 rear and below throughout its length has downwardly extending lateral projections 5 which take over the sides of the frame 3 when the receiver is closed, and is provided laterally with a slot 6 in its upper wall, the 105 term "slot" being used not as defining an opening of a particular contour but as distinguishing this opening from the down-

ward and rearward openings to avoid confusion.

A casing lock 7 arranged in the upper rear portion of the frame 3, caused by its spring 8 to engage with its tooth in a recess on the inner face of the projection 5, as shown in Fig. 5, serves, in connection with the pin 4, to hold the receiver in its closed position.

The breech slide comprises three portions, the breech bolt proper 9, the offset portion 10 and the forwardly extending guiding portion 11. The term breech slide, is a generic one, being used to define all or any portions of the member driven to the rear by the recoil. This breech slide occupies in use a position with the bolt 9 lying in a chamber formed in the interior of the receiver coaxial with the barrel, its offset 10 projecting into the slot 6 and limited in its forward and rearward movement by the front and rear ends of the slot, whereby the projection of the bolt 9 to the rear is, as shown in Fig. 3, prevented by the impingement of the integral offset 10 against a solid part of the receiver 1. That portion 11 of the breech slide which extends above the barrel to the front end thereof, is provided at its extremity with a downwardly extending beak 12, guided in a slit 13 in the upper side of the barrel casing 14 which may be formed integral with the receiver 1, as it is in fact here shown.

The barrel casing 14 is arranged out of contact with the barrel 2 so as to provide an interspace 15 for the housing of the return spring 16 which bears to the rear against the receiver and to the front against a shoulder formed in the forward part of a cap 17 telescoped thereover and arranged to slide over the barrel 2 within the space 15. The beak 12 of the breech slide takes over the outer edge of the cap 17, so that the return spring 16 presses the breech slide constantly toward the front through the engagement of its cap with the beak of the slide, and the breech slide is also held down to its position parallel to the barrel by the same engagement between the beak and cap.

The breech bolt 9 is hollow and open to the front with a narrow slit 18 in its lower wall and a perforation in the center of its rear end wall. A closing plug 19 is connected with the bolt 9 at its front end by a bayonet joint engaging in the closing position in a recess 20 formed in the slide portion 11 and is rotated free of engagement with said recess when it is to be removed. Disengagement when in the receiver is prevented by the ejector 21 lying alongside the bolt 9 and the closing plug 19 in a groove formed in both and held against longitudinal relative movement by a stud 22 engaging a recess in said bolt.

The firing pin 23 is mounted to reciprocate within the breech bolt 9 and through

a central opening in the closing plug 19, pressed forward by a firing spring 24 interposed between the body of the pin 23 and the rear end wall of the bolt 9. The pin is also extended to the rear at 25 which rearward extension lies when cocked in the perforation in the rear end wall and projects therefrom as a visible signal to indicate that the arm is in firing condition.

Formed on the lower side of the firing pin 23 is a beveled shoulder 26 guided in the slit 18 and in line with the sear 27 pivoted at 28 and acted upon by the trigger 29 through the trip bar 30 against the tension of its spring 31.

A safety catch 32 rotatably mounted in the frame 3 and having a flat face 33 pressed by the spring 34 underlies the sear 27 and, in the plane of the sear, is notched at 35 so that it permits or prevents the actuation of the sear to release the firing pin according as the notch 35 is turned toward or away from the sear by the lever 36 lying alongside the frame. The firing pin cannot be cocked when the catch is in "safety" position; and, if previously cocked, it cannot be released. As a further safeguard, the lock 7 has an inwardly extending arm 37 which is prevented from moving laterally of the pistol to release the tilting receiver when the pistol is cocked, by the interposition in its path of the shoulder 26, as seen in Fig. 2. The reserve cartridges are stored in a clip 38 held in place in the magazine of the frame 3 by the spring latch 39.

The operation is as follows: By grasping the corrugated grips 40 on the breech slide, the slide is manually moved to the rear to the position shown in Fig. 3 with the bolt projecting to the rear of the receiver. When released, it is carried forward by the return spring, the firing pin being held back in a cocked position, by the engagement of the sear with the firing pin shoulder, the forwardly moving bolt loading a cartridge into the firing chamber, as shown in Fig. 2. When the trigger is pulled the sear releases the firing pin which is propelled forward by its spring and the cartridge is exploded.

As the projectile is propelled forward, the breech slide is propelled to the rear, and the weight of the breech slide and tension of the return spring are such that before the shell has moved sufficiently to allow the gases to escape at the rear the projectile will have left the barrel, so that there is no leakage and the projectile receives the full force of the gases. As the breech slide moves back with the extractor beak 41 engaging the rim of the shell, the opposite side of the rim is caught by the ejector 42 held in the side wall of the receiver by the screw 43 and the shell is thereby thrown out of the lateral opening 44, and a fresh cartridge from the

magazine takes its place. As the slide reaches its rearmost position, the firing pin is caught and held by the sear, and the slide returns, chambering the fresh cartridge and leaving the pistol cocked ready to be again fired.

To dismount for cleaning and the like, the cap 17 of the return spring is caught below by the finger nail or the heel 45 of the magazine clip and pressed back until it clears the beak 12 of the slide, the receiver being unlocked to allow the slide to assume a position sufficiently at an angle to the barrel for the beak 12 to clear the cap 17, when the return spring 16 will force the cap out of the interspace 15 and may itself be withdrawn leaving the slide free. The slide is then pushed to the rear and swung at an angle of 30 to 35 degrees to the barrel as indicated in Fig. 6, with the bolt 9 occupying a transverse position in the receiver and in the upper slot 6 and the open bottom of the receiver. It may then be bodily withdrawn upwardly therefrom along with the firing pin mechanism housed therein. The extractor may now be taken from its groove in the side of the bolt and plug, the plug rotated through 90 degrees to release it from engagement with the slide and removed, leaving the front end of the bolt open, whereupon the firing pin and spring will drop out. The parts are reassembled by a reversal of this operation.

It will be seen that the accidental assumption by the breech slide of an angular position relative to the receiver and barrel when the pistol is in firing condition is absolutely precluded by the fact that the receiver is held down by the lock 7 with its open bottom opposed to and closed by the upper face of the frame 3 and the slide is also held parallel to the axis of the receiver and barrel, even in the tilted position of the latter, by the engagement of its beak 12 with the cap 17 which embraces the barrel. Thus while easily loosed and removed in a few seconds without tools, it is held securely against accidental disarrangement, and the pistol cannot be fired with the breech slide insecure.

Having thus fully described the invention, what I claim as new is:

1. In an automatic fire arm, the combination, with the barrel, the frame, and the receiver, of a breech slide comprising a breech bolt mounted in the receiver and an integral offset portion thereof extending outside the receiver and forward along the barrel toward the muzzle.

2. In an automatic fire arm, the combination, with the barrel, the frame, and the receiver, of a breech slide comprising a breech bolt mounted in the receiver and an integral offset portion thereof extending to the outside of the receiver and forward along the barrel toward the muzzle, and a guiding

connection between said offset forward extension and the barrel.

3. In an automatic fire arm, the combination, with the barrel, the frame, and a receiver, provided with a slot in its wall, of a breech slide comprising a breech bolt mounted to reciprocate within the receiver coaxial with the barrel and an integral offset portion extending outside the receiver and forward along the barrel, a return spring acting on the forward extension, and a guiding connection between the forward extension and the barrel.

4. In an automatic fire arm, the combination, with the barrel, the frame, and a receiver provided in its wall with a slot, of a breech slide comprising a breech bolt mounted to reciprocate within the receiver coaxial with the barrel an offset portion extending through the slot outside the receiver and forwardly above the barrel, a return spring acting on the forward extension, and a guiding connection between the forward extension and the barrel.

5. In an automatic fire arm, the combination with the barrel, the frame, a receiver provided in its wall with a slot, and a barrel casing surrounding the barrel and providing an interspace, of a breech slide comprising a breech bolt mounted to reciprocate within the receiver coaxially with the barrel an offset portion extending through the slot and forwardly above the barrel, a return spring housed in the interspace of the barrel casing, and a connection between the front end of the slide and the return spring.

6. In an automatic fire arm, the combination, with the barrel, the frame, a receiver provided with a lateral slot, and a barrel casing surrounding the barrel and providing an interspace, of a breech slide comprising a breech bolt mounted to reciprocate within the receiver coaxially with the barrel, an offset portion lying in the slot and a portion extending forwardly above the barrel, a return spring housed in the interspace of the barrel casing, an open ended cap over the front end of the return spring about the barrel, and a connection between the front end of the slide and the cap.

7. In an automatic fire arm, the combination, with the barrel, the frame, a receiver provided with a lateral slot, and a barrel casing surrounding the barrel and providing an interspace, said barrel casing having an upper slit, of a breech slide comprising a breech bolt mounted to reciprocate within the receiver coaxially with the barrel, an offset portion lying in the slot and a portion extending forwardly above the barrel, a return spring housed in the interspace of the barrel casing, and an open ended cap with an interior shoulder, the front end of the spring abutting against the shoulder within the cap and the front end of the slide

provided with a beak extending through the slit in the barrel casing and taking over the cap.

8. In an automatic fire arm, the combination, with the barrel, the frame, a tilting receiver open below and to the rear and with a slot above, a lock to secure the receiver down upon the frame, and a barrel casing surrounding the barrel out of contact therewith to form an interspace, the barrel casing having an upper longitudinal slit, of a breech slide comprising a breech bolt mounted to reciprocate within the receiver and through the open rear end thereof in a direction coaxial with the barrel an offset portion lying in the slot and a portion extending forwardly above the barrel, a return spring housed in the interspace of the barrel casing, a connection between the front end of the slide and the return spring comprising an open ended cap with an interior shoulder, the front end of the spring abutting against the shoulder within the cap and the front end of the slide provided with a beak extending through the slit in the barrel casing and taking over the cap.

9. In an automatic fire arm, the combination, with the barrel, the trigger mechanism, the frame, a tilting receiver open below, a lock to secure the open bottom of the receiver against the frame, of a breech slide comprising a hollow bolt mounted to reciprocate within the receiver coaxially of the barrel and an offset portion lying in the slot, the bolt open to the front with a slit in its lower wall, a removable closing plug in the front end of the bolt, a firing pin and spring in the bolt and the former guided in the closing plug, and an operative connection between the trigger mechanism and the firing pin by way of the slit.

10. In an automatic fire arm, the combination, with the barrel, the trigger mechanism, the frame, a tilting receiver open below and with a slot above, a lock to secure the open bottom of the receiver against the frame, of a breech slide comprising a hollow bolt mounted to reciprocate within the receiver coaxially of the barrel and an offset portion lying in the slot, the bolt open to the front with a slit in its lower wall, a removable closing plug in the front end of the bolt, a firing pin and spring in the bolt and the former guided in the closing plug, and an operative connection between the trigger mechanism and the firing pin by way of the slit, the slot and open portion of the receiver being of sufficient size to permit the bolt to be swung transversely and inserted and removed therethrough.

11. In an automatic fire arm, the combination, with the barrel, the trigger mechanism, the frame, a receiver hinged to the frame, the receiver open below and to the rear, a lock to secure the receiver with its open bot-

tom against the frame, of a breech slide comprising a hollow breech bolt mounted to reciprocate within the receiver and through the rear end thereof coaxially with the barrel and an offset portion lying in the slot, the bolt open to the front with a slit in its lower wall, a closing plug secured in the front end of the bolt while in the receiver, a firing pin and spring mounted in the bolt and the former guided through the closing plug, a shoulder formed on the lower side of the firing pin and sliding in the slit in the bolt, said shoulder engaged by the sear of the trigger mechanism to cock the pin.

12. In an automatic fire arm, the combination, with the barrel, the trigger mechanism, the frame, a receiver hinged to the frame, the receiver open below and to the rear and with a slot above, a lock to secure the receiver with its open bottom against the frame, of a breech slide comprising a hollow breech bolt mounted to reciprocate within the receiver and through the rear end thereof coaxially with the barrel and an offset portion lying in the slot, the bolt open to the front with a slit in its lower wall, a closing plug secured in the front end of the bolt while in the receiver, a firing pin and spring mounted in the bolt and the former guided through the closing plug, a shoulder formed on the lower side of the firing pin and sliding in the slit in the bolt, said shoulder engaged by the sear of the trigger mechanism to cock the pin, and a safety catch controlling the operation of the trigger mechanism, the slot and open bottom of the receiver being of sufficient size to permit the bolt to be swung transversely of the receiver and inserted and removed therethrough when the receiver is unlocked from the frame.

13. In an automatic fire arm, the combination, with the barrel, the trigger mechanism, the frame, a receiver hinged to the frame open below and with a slot above, a lock to secure the receiver with its open bottom against the frame, a barrel casing surrounding the barrel out of contact therewith to form an interspace, of a breech slide comprising a hollow breech bolt mounted to reciprocate within the receiver coaxially with the barrel an offset portion lying in the slot and a portion extending forwardly above the barrel, a return spring housed in the interspace of the barrel casing, and a connection between the front end of the slide and the return spring, the hollow breech bolt open to the front and with a slit in its lower wall, a closing plug secured in the front end of the bolt while in the receiver, a firing pin and spring mounted in the bolt and the former guided through the closing plug, a shoulder formed on the lower side of the firing pin and sliding in the slit in the bolt, said shoulder engaged by the sear of the trigger mechanism to cock the pin.

14. In an automatic fire arm, the combination, with the barrel, the trigger mechanism, the frame, a receiver hinged to the frame open below and to the rear and with a slot above, a lock to secure the receiver with its open bottom against the frame; a barrel casing surrounding the barrel out of contact therewith to form an interspace, said barrel casing having an upper slit, of a breech slide comprising a hollow breech bolt mounted to reciprocate within the receiver and through the rear end thereof coaxially with the barrel an off-set portion lying in the slot and a portion extending forwardly above the barrel, a return spring housed in the interspace of the barrel casing, an open ended cap with an interior shoulder around the barrel, the front end of the return spring resting in the cap against the shoulder, the front end of the slide provided with a beak extending through the slit in the barrel casing and taking over the cap, the hollow breech bolt open to the front with a slit in its lower wall, a closing plug secured in the front end of the bolt while in the receiver, a firing pin and spring mounted in the bolt and the former guided through the closing plug, a shoulder formed on the lower side of the firing pin and sliding in the slit in the bolt, said shoulder engaged by the sear of the trigger mechanism to cock the pin, and a safety catch controlling the operation of the trigger mechanism, the slot and open bottom of the receiver being of sufficient size to permit the bolt to be swung transversely and inserted and removed therethrough when the receiver is unlocked from the frame.

15. In an automatic fire arm, the combination, with the barrel, the frame, and the receiver having an opening in its wall, of a breech slide comprising a breech bolt mounted to reciprocate within the receiver, and an offset portion thereof extending through the opening outside the receiver and forward along the barrel toward the muzzle.

16. In an automatic fire arm, the combination, with the barrel, the frame, and the receiver having an opening in its wall, of a breech slide comprising a breech bolt mounted to reciprocate within the receiver, and an offset portion extending through the opening to the outside of the receiver and forward along the barrel toward the

muzzle, and a guiding connection between said offset forward extension and the barrel.

17. In an automatic fire arm, the combination, with the barrel, the frame, and the receiver having an opening in its wall, of a breech slide comprising a breech bolt mounted to reciprocate within the receiver, and an offset portion thereof extending through the opening outside the receiver and forward along the barrel toward the muzzle, the size of the opening being sufficient to enable the bolt to be swung transversely of the receiver and mounted and dismounted through the opening when the fire arm is in an operative condition.

18. In an automatic fire arm, the combination, with the barrel, the frame, and the receiver having an opening in its wall, of a breech slide comprising a breech bolt mounted to reciprocate within the receiver, and an offset portion extending through the opening to the outside of the receiver and forward along the barrel toward the muzzle, and a guiding connection between said offset forward extension and the barrel, the size of the opening being sufficient to enable the bolt to be swung transversely of the receiver and mounted and dismounted through the opening when the connection between the extension and the barrel is released.

19. In an automatic fire arm, the combination with the barrel, the frame, a receiver provided in its wall with a slot, and a barrel casing surrounding the barrel and providing an interspace, of a breech slide comprising a breech bolt mounted to reciprocate within the receiver coaxially with the barrel an offset portion extending through the slot and forwardly above the barrel, a return spring housed in the interspace of the barrel casing, and a connection between the front end of the slide and the return spring, the size of the slot being sufficient to enable the bolt to be swung transversely of the receiver and mounted and dismounted through the slot when the receiver is tilted and the guiding connection between the extension and the barrel is released.

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

LOUIS SCHMEISSER.

Witnesses:

GUSTAV LAUBER, Jr.,
FRITZ SCHNELL.