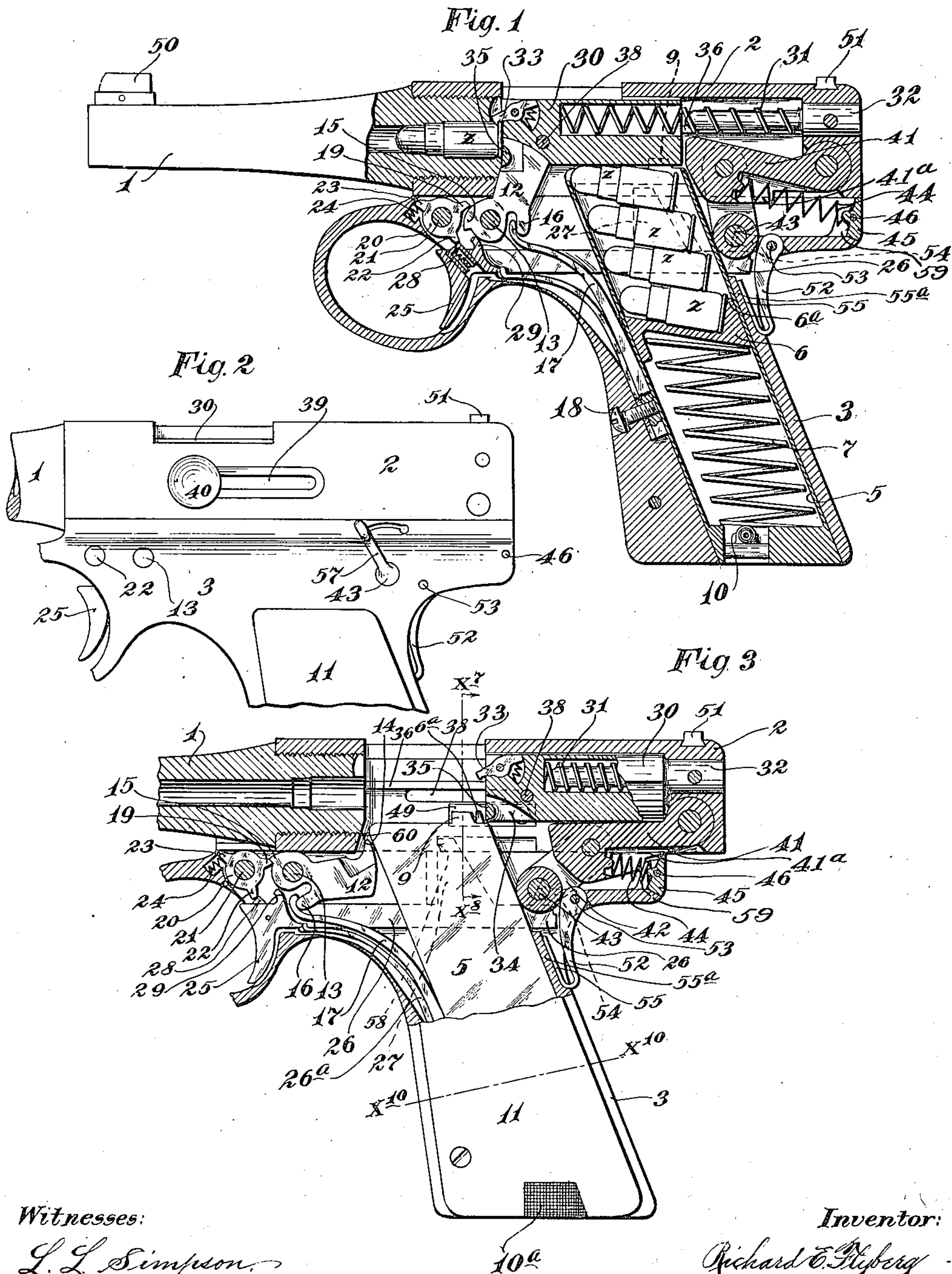


R. E. FLYBERG.  
AUTOMATIC PISTOL.  
APPLICATION FILED NOV. 23, 1907.

915,087.

Patented Mar. 16, 1909.

2 SHEETS—SHEET 1.



Witnesses:

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Fig. 4

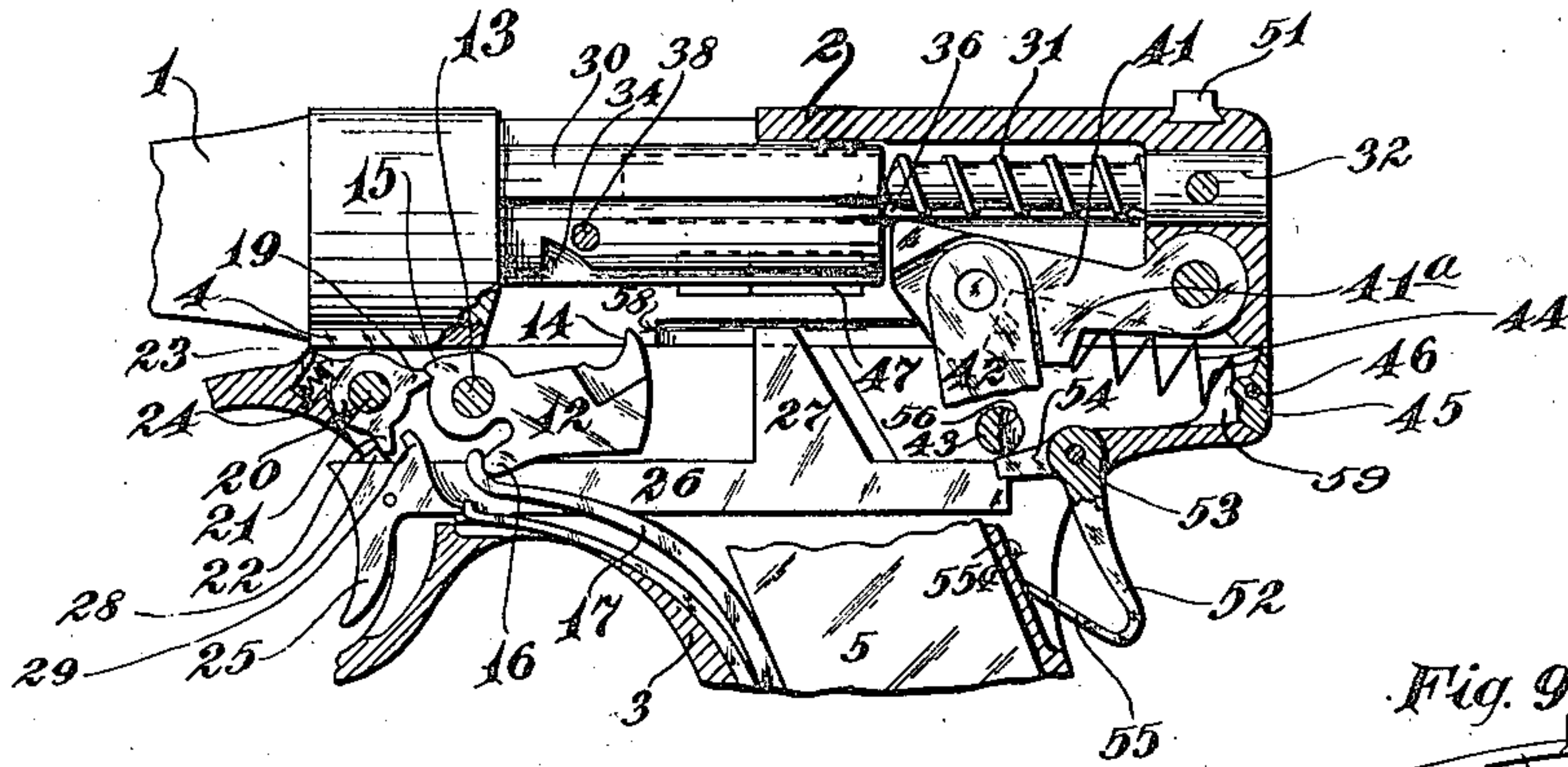


Fig. 9



Fig. 6

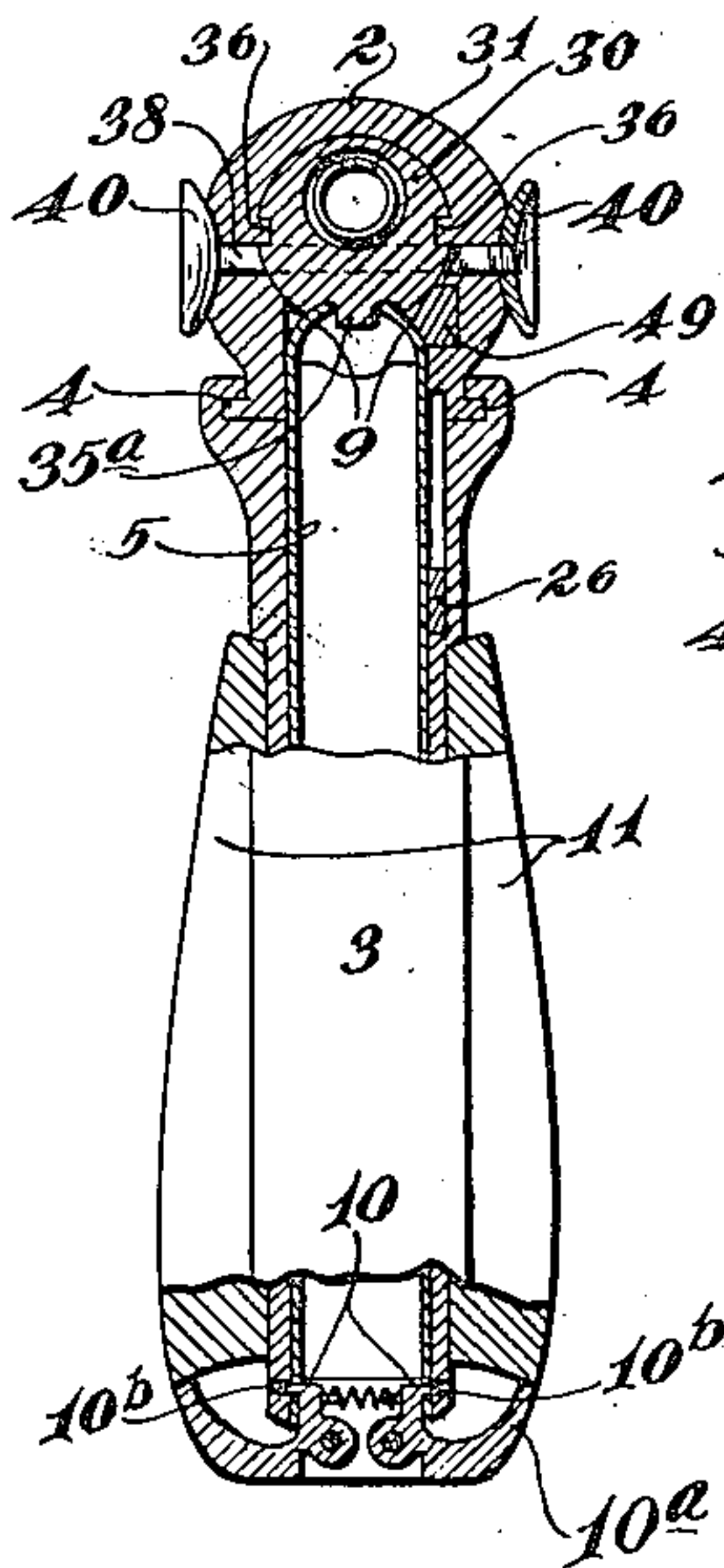


Fig. 5

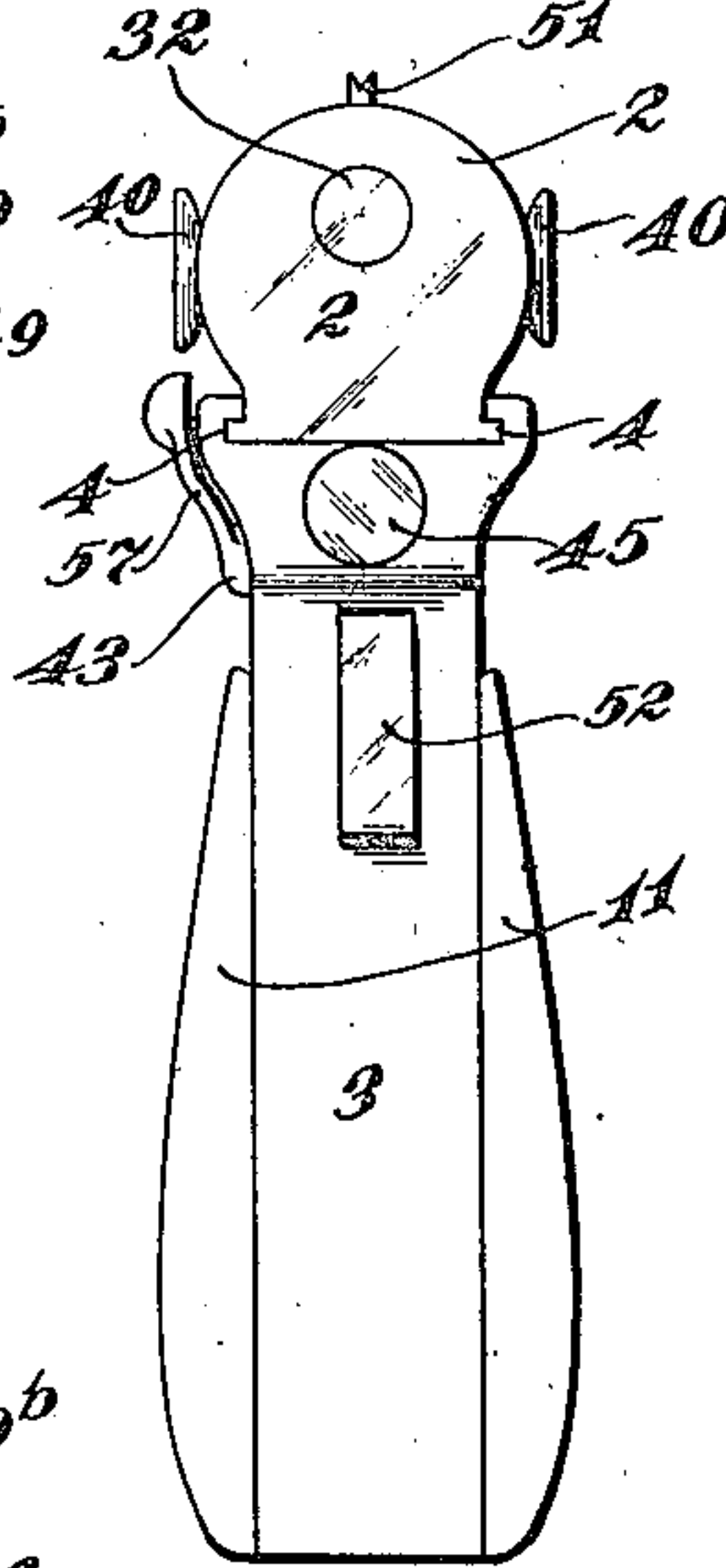


Fig. 7

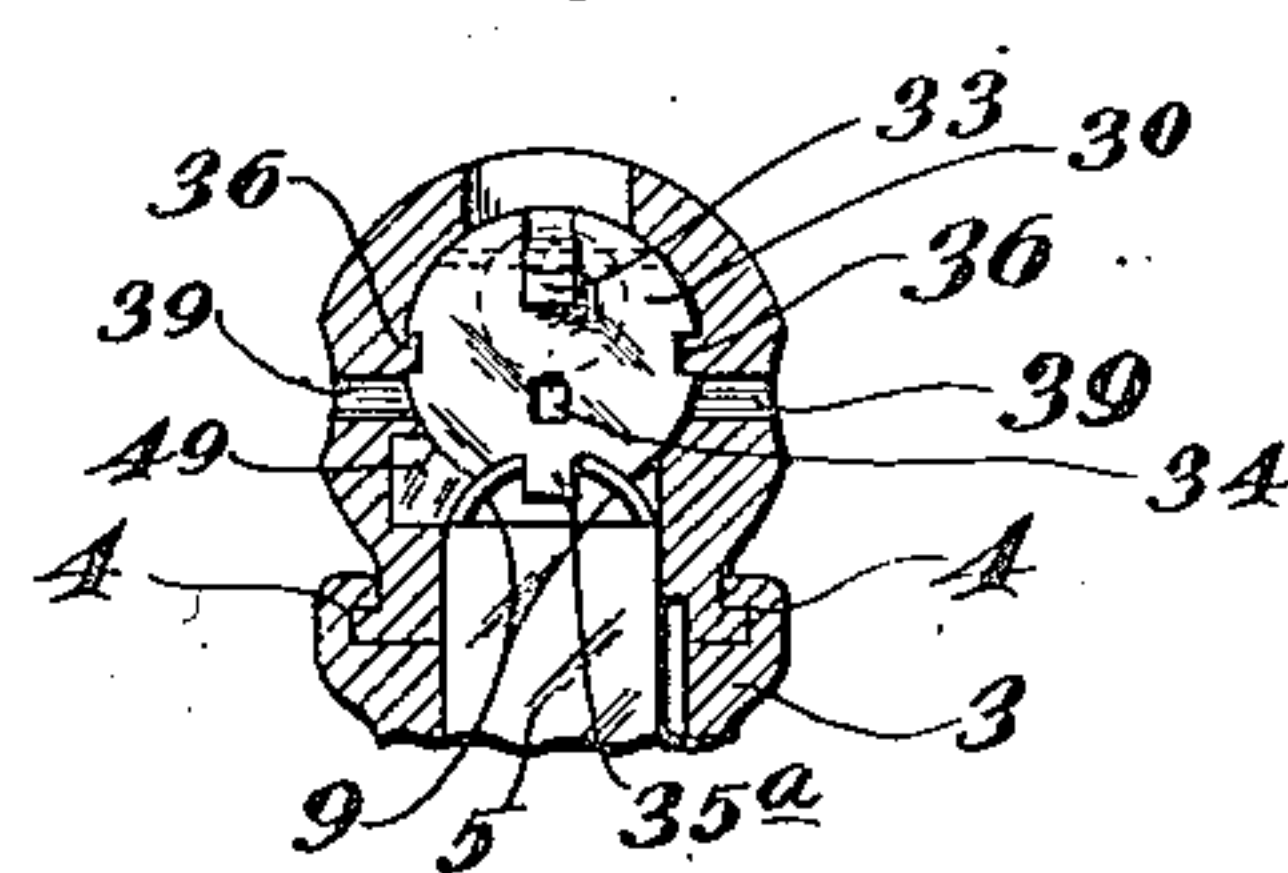


Fig. 8

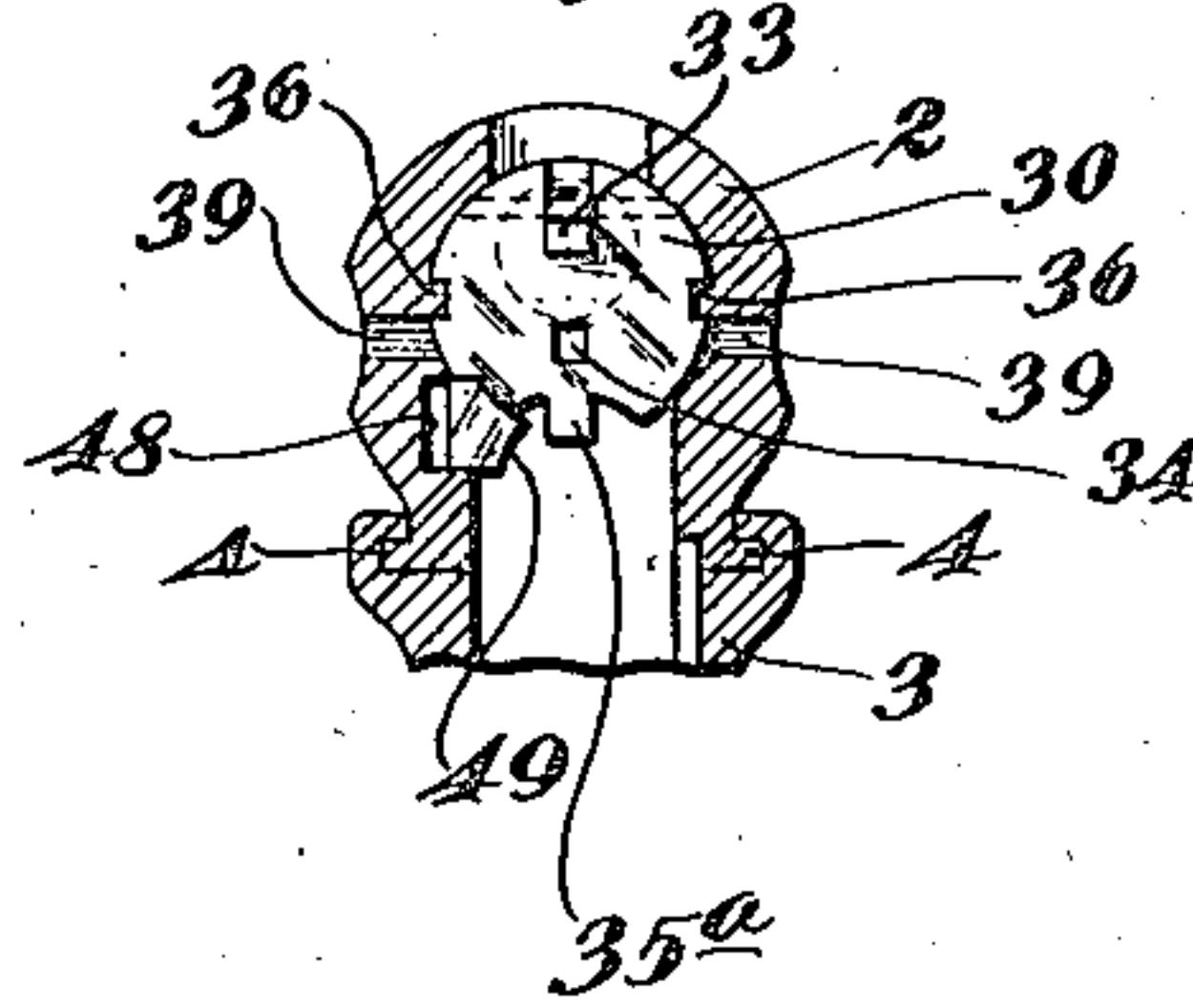
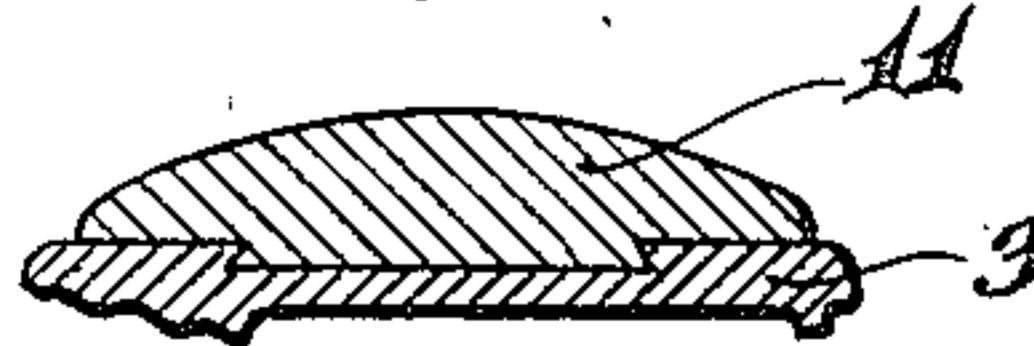


Fig. 10.



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# UNITED STATES PATENT OFFICE.

RICHARD E. FLYBERG, OF HALSTAD, MINNESOTA.

## AUTOMATIC PISTOL.

No. 915,087.

Specification of Letters Patent.

Patented March 16, 1909.

Application filed November 23, 1907. Serial No. 403,441.

*To all whom it may concern:*

Be it known that I, RICHARD E. FLYBERG, a citizen of the United States, residing at Halstad, in the county of Norman and State of Minnesota, have invented certain new and useful Improvements in Automatic Pistols; 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 to which it appertains to make and use the same.

My invention relates to automatic or self loading fire arms and is particularly directed to the production of an improved automatic pistol.

To the above ends the invention consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

In the accompanying drawings which illustrate the invention like characters indicate like parts throughout the several views.

Referring to the drawings, Figure 1 is a view partly in side elevation, but principally in vertical section, showing the improved automatic pistol. Fig. 2 shows the improved pistol in side elevation, with the barrel, handle and certain other portions broken away. Fig. 3 is a view corresponding approximately to Fig. 1, but with some parts broken away and showing the parts in positions occupied immediately after a cartridge has been exploded and reacted upon the breech block. Fig. 4 is a view partly in side elevation and partly in vertical section and with some parts broken away, illustrating the normal position of the parts, that is, the positions occupied when the hammer is cocked and the pistol ready to fire. Fig. 5 is a rear elevation of the improved pistol. Fig. 6 is a view corresponding to Fig. 5 with some parts broken away and some parts shown in vertical section. Figs. 7 and 8 are views chiefly in section on the line  $x^7 x^8$  of Fig. 3, but with the cartridge magazine and breech block shown in full. Fig. 9 is a detail in plan, showing a small latch spring which serves to prevent a forward movement of the breech block when a cartridge magazine is removed; and Fig. 10 is a detail in section on the line  $x^{10} x^{10}$  of Fig. 3, some parts being broken away.

The pistol barrel 1 is screwed into or otherwise rigidly secured to the forward end of a receiver or sliding casing 2. The casing 2 is connected for sliding movements in a direction parallel to the axis of the barrel 1, to

the upper end portion of a heavy recessed handle 3, this sliding connection being preferably made by flange and groove joints 4, best shown in Figs. 5 to 8 inclusive. The handle 3 is recessed to afford a seat or pocket for the reception of the cartridge magazine 5 that is preferably constructed of thin sheet metal and is provided with a follower 6 yieldingly pressed upward by a spring 7.

The cartridges in the magazine 5 are indicated by the character  $z$ . The upper end of the magazine 5 is open but the sides thereof are provided with reversely curved inturned stop fingers 9 that engage the butt end of the uppermost cartridge to prevent the same from being thrown out of the magazine by upward pressure from the spring pressed follower 6. The upper cartridge, when engaged with the stop fingers 9 may, however, be removed from the magazine by a forward sliding movement, all as will hereinafter more fully appear. At its lower end, the magazine 5 is provided with a pair of reversely acting spring pressed lock dogs that are pivotally connected to said magazine, have finger pieces  $10^a$  by means of which they may be forced into inoperative position, and are provided with lock lugs  $10^b$  for engagement with internal notches in the handle 3, as best shown in Fig. 6. As best shown in Fig. 3, the upper surfaces of the finger pieces  $10^a$  are roughened. The numeral 11 indicates cheek pieces which preferably have dove-tailed engagement with the sides of the handle 3, as shown in Fig. 10, and are detachably securable to the sides of said handle.

The hammer 12 works in the recessed upper portion of the handle 3 and is pivotally connected to the sides thereof by a pivot pin 13. This hammer is provided with a sharp firing nose 14, a lock lug 15 and a bearing lug 16. The hammer is subject to a hammer spring 17, the lower end of which is suitably secured to the handle 3, as shown, by means of a screw 18, and the free upper end of which engages the bearing lug 16 of said hammer.

The hammer is arranged to be held in its cocked position, shown in Fig. 4, by a stop lug 19 carried by a small sear 20 pivotally mounted on a shaft 21 secured to the sides of the handle 3. This sear 20 is further provided with a tripping lug 22 and with a third lug 23, which latter is subject to the upward pressing force of a small spring 24 suitably



seated in the upper forward portion of the handle 3. The trigger comprises a finger piece 25 secured to the forward end of a trigger bar 26 that is mounted in the handle 3 and is arranged to slide in a direction parallel to the barrel 1 and is provided with an intermediate upwardly projecting lug 27, the purpose of which latter will hereinafter appear. The trigger bar 26 is yieldingly pressed forward by a spring 26<sup>a</sup> secured to the handle 3.

Mounted on the forward end of the trigger bar 26 is a sliding upwardly spring-pressed tripping abutment 28, shown as in the form of a spring-pressed sleeve, the upper end of which is adapted to engage with the tripping lug 22 of the sear 20. Also in the forward portion of the trigger bar 26, just rearward of the sear tripping sleeve or abutment 28, is a stop lug 29.

Working within the receiver 2 and having a sliding movement therein in a direction of the extended axis of the barrel 1 is a breech block 30 which, as shown, is recessed to receive a considerable portion of a coiled retracting spring 31, the rear portion of which spring is coiled around a retaining pin 32 secured at its rear end to the rear end of the casing 2 and adapted to be telescoped with the said spring into said breech block, as shown in Fig. 3. At its extreme forward end the breech block 30 is recessed to afford a seat for a small pivoted spring-pressed latch dog 33, which is adapted to engage the rim of the cartridge under rearward movement of the breech block, all as will hereinafter more fully appear. The lower forward portion of the breech block 31 is recessed at 34 to afford clearance for the point or free end of the hammer 12, and to provide the said breech block with a small transverse push bar 35 that is adapted under forward movement of the breech block to engage the flange of the upper shell of the magazine and force the same into the pistol barrel. To hold the breech block against rotation in respect to the receiver, the latter is shown as provided with longitudinal guide ribs 36 that work in grooves in the opposite sides of said breech block. The entire bottom of the breech block is double grooved to afford clearance for the upper ends of the magazine fingers 9 (see particularly Figs. 6 and 7). As a convenient means for pulling the breech block backward by hand, and as required in order to put the first cartridge into the pistol barrel, a pin 38 is extended diametrically through said breech block and works through longitudinal slots 39 in the sides of the receiver 2. The pin 38 is provided, at its outer ends, with cup-shaped finger pieces 40 which give the fingers a good hold on the breech block.

Working within the recess of the receiver 2 and pivoted at its rear end to the rear por-

tion thereof is a strong vertically swinging breech lock or pivoted lock piece 41, the free forward end of which normally stands as shown in Figs. 1 and 4, in position to lock the breech block against rearward movement in respect to said receiver. The free end portion of this breech lock 41 is supported by and pivotally connected to the upper ends of a pair of short links 42, the lower ends of which are pivotally connected, by a pin 43, to the recessed upper rear portion of the handle 3. A coiled compression spring 44 reacts against a shoulder on the free end portion of the breech lock 41, and against a block 45 which, as shown, and preferred, is detachably held to the rear upper portion of the handle 3 by a pin 46. The force of this spring 44 is such that it tends to buckle the toggle made up of the breech lock 41 and links 42 and, hence, hold the said breech lock in its operative position, shown in Figs. 1 and 4.

The numeral 47 indicates a small leaf spring that is seated in a groove 48 (see Figs. 3, 7 and 8) formed in the receiver 2. At its free end this spring is provided with a laterally projecting lock lip 49 adapted to be normally engaged and pressed into the inoperative position shown in Fig. 7, by one of the magazine fingers 9, and to spring into the position shown in Fig. 8 when the magazine is removed, all for a purpose which will hereinafter appear.

The construction described makes it possible to apply one of the sight pieces 50 to the end of the barrel and the other sight piece 51 to the rear end of the receiver 2, and this construction is important because it rigidly connects both sights in respect to the barrel, and thus makes possible accurate shooting.

Working in an opening in the rearwardly curved upper portion of the handle 3 is a so-called primary safety lock, shown as in the form of a small lever 52 pivotally connected to said handle by a pin 53 and provided with a short forwardly projecting lock arm 54 that is adapted to engage the notched rear end of the trigger bar 26, as shown in Fig. 4, to thereby lock the said trigger bar and, hence, the trigger, in its forward or inoperative position. The said lock lever 52 is shown as provided with a spring extension 55 that engages a web 55<sup>a</sup> of the handle 3 to yieldingly hold the said lever 52 and its arm 54 in operative position shown in Fig. 4. I also provide a so-called secondary safety lock which acts positively upon the primary safety lock to hold the same in its operative position. As a simple and convenient way of providing this secondary safety lock, the pivot pin or bolt 43 before described is mounted for oscillatory movement and is provided with a segmental intermediate section 56 located just above the arm 54 of the primary safety lock, and the said oscillatory pin or bolt is provided at one end with a small lever or finger-piece 57 by means of which it may be set in either of its



two positions. The lower intermediate portion of the receiver 2 is provided with a shoulder 58 that is adapted to engage the lug 27 of the trigger bar 26 under rearward movement of the receiver.

The normal position of the parts, that is, the position in which the parts are all at rest and the hammer is in a cocked position, are shown in Fig. 4. In this position of the parts the arm 54 of the primary safety lock holds the trigger bar and, hence, the trigger 25, against movement, and the eccentric or segmental portion of the secondary lock device or lock bolt 56 positively holds the said lock arm 54 in engagement with the trigger bar 26. When, however, by a movement of the lever 57 toward the rear, the lock segment 56 of the pin or bolt 43 is turned slightly so that its cut away portion is above the free end of the arm 54, the said arm is free for upward movement when the lever 52 is pressed forward into the recess in the handle 3, as shown in Fig. 1. The said lever 52 will be thus pressed inward whenever the handle 3 is firmly gripped in the hand and, furthermore, the person holding the pistol may, at any time, and without danger of discharging the pistol, determine whether or not the positive secondary lock is applied, simply by attempting to press inward the said lever 52.

The release of the hammer requires first that the secondary lock be in an inoperative position; second, that the primary safety lock be in released position; and third, that the trigger 25 be forced rearward by the finger engaged therewith. When the trigger is forced rearward its tripping abutment 28, by engagement with the lug 22, oscillates the sear 20 far enough to carry its lock lug 19 above the cooperating lock lug 15 on the hammer and thus the hammer is released, and when released is thrown against the cartridge by its spring 17, as shown in Fig. 1. Fig. 1 shows the position of the parts the instant that the cartridge is struck by the hammer and exploded, but before the recoil has become effective on the breech block and receiver. The force of the recoil is delivered directly to the breech block 30 and under its initial movement is forced directly against the breech lock 41, so that the receiver and the barrel will be driven rearward by said breech lock, against the tension of both springs 31 and 44. The rearward movement of the receiver 2 causes the toggle made up of the breech lock 41 and links 42 to straighten out so as to carry the free end of the said breech lock below the breech block, as shown in Fig. 3, whereupon further rearward movement of the breech block further compresses the spring 31 so that the breech block moves to its extreme rearward position in respect to the receiver, to-wit, into the position shown in Fig. 3. The extreme rearward movement of the

receiver is limited by engagement of the shoulder 41<sup>a</sup> on the breech lock 41 with a stop lug 59 on the upper rear portion of the handle 3 (see particularly Figs. 3 and 4). The rearward movement of the receiver and barrel causes the beveled surface 60 on the lower forward portion of the receiver to press the hammer downward or backward into a cocked position, in which position it is automatically locked by the sear lug 19. The rearward movement of the breech block, after the receiver and barrel have reached the limit of their rearward movement, causes the ejector dog or hook 33 to pull the fired shell from the barrel and throws the lower portion of the flange thereof against the magazine fingers 9, so that the shell is ejected from the pistol by an upward whirling movement.

While the breech block, receiver and barrel are in their rearmost position, shown in Fig. 3, the spring-pressed magazine follower 6 raises slightly the cartridges in the magazine, so that the rear end of the cartridge shell is pressed into engagement with the magazine fingers 9. The breech block holds the breech lock 41 pressed downward until the said breech block has been again moved forward into engagement with the breech of the barrel, whereupon the said breech lock, being released, will be moved upward by the spring 44 and the receiver, barrel and breech block will then be together moved back to the normal positions shown in Fig. 1. The initial forward movement of the breech block, which, as just stated, takes place while the barrel and receiver remain in the position shown in Fig. 3, causes the portion 35<sup>a</sup> of the push bar 35 (see particularly Figs. 6 and 7) which passes between the magazine fingers 9, to engage the rim of the uppermost cartridge in the magazine and forces the same forward out of the magazine and into the breech end of the barrel. The ejector dog 33 engages the rim of the positioned cartridge as the breech block reengages with the breech of the barrel.

When the receiver 2 is in its rearmost position its shoulder 58 is engaged with the lug 27 on the trigger bar 26, and the trigger is then held in an extreme rearward position, so that it can not possibly assume its normal position until after the barrel, receiver and breech have returned to normal positions, after which the yielding tripping abutment 28 cams itself under the sear lug 22 and thus assumes its normal operative position in respect to the sear and cocked hammer.

When the last shell has been forced from the magazine, the upwardly projecting pointed lug 6<sup>a</sup> of the magazine follower assumes a position shown in Fig. 3 in front of the retracted breech block and thus locks the breech block, receiver and barrel under re-



tracted positions. When the magazine is withdrawn from the handle, the flanged head 49 of the spring 47 springs in front of the breech block, as shown in Fig. 8, and thus locks the breech block to the receiver, and the breech block, of course, locks the receiver and barrel against return movements. When the magazine is replaced in the handle filled with the cartridges, one of the fingers 9 of said magazine again presses the head 29 back into normal position, thus causing the same to release the breech. It will thus be seen that after the last cartridge has been fired, the breech block, receiver and barrel are locked in their retracted positions and are released when the magazine filled with cartridges is again placed in the handle, and, when thus released, return to their normal positions and carry the first cartridge into the barrel in automatic action.

It will be noted that the handle of the pistol is tapered upward and is given such form that when tightly gripped in the hand it cannot possibly slip out of the hand.

What I claim is:

1. In an automatic pistol, the combination with a recessed handle and cartridge magazine seated therein, said magazine having a spring-pressed follower and having in-turned stop fingers at the sides of its open upper end, of a barrel and receiver rigidly connected and mounted for common receding movements on said handle, a receding breech block mounted in said receiver, a breech lock pivoted to said receiver and normally holding said breech block against the breech of said barrel, a connection between said breech lock and said handle for retracting the former under receding movements of said receiver, barrel and breech block, a yielding device for restoring said receiver, barrel and breech lock to normal positions, and an independent yielding device for restoring said breech block to normal position in respect to said barrel and receiver, a projection on said breech block working between the stop fingers of said magazine to force the upper cartridge from the magazine into the barrel, a shell ejector carried by said breech block, and a trigger released hammer arranged to be

cocked by a receding movement of said barrel and receiver, substantially as described.

2. In an automatic gun, the combination with a barrel, a receding receiver and a receding breech block, of a spring actuated hammer, a sear for holding said hammer cocked, a trigger having a yielding tripping abutment operative on a projection of said sear to release said hammer, and means whereby said trigger will be held in a retracted position when said receiver is retracted, substantially as described.

3. In an automatic gun, the combination with a handle and cartridge magazine therein, of a spring actuated hammer, a sear for holding said hammer in its cocked position, a trigger provided with a rigidly secured slidably extended bar and having a yielding tripping abutment operative on a projection of said sear to release said hammer, and a safety lock operative on the rear end portion of said trigger bar and having a lever that projects at the rear upper portion of said handle, substantially as described.

4. In an automatic gun, the combination with a barrel and receiver yieldingly mounted for common receding movements, a breech block yieldingly mounted in said receiver, a cartridge magazine having a yieldingly pressed follower arranged to lock said breech block, receiver and barrel in retracted positions after the last cartridge has been fired, and a latch operative to lock said breech block, receiver and barrel in retracted positions when the cartridge magazine is removed from working position, and which latch is held inoperative when said magazine is in operative position, whereby the first cartridge from the loaded magazine will be automatically delivered into said barrel, immediately after the loaded magazine has been placed in working position, substantially as described.

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

RICHARD E. FLYBERG.

Witnesses:

H. D. KILGORE,  
MALIE HOEL.