



Rearward, Magazine.

No. 719,955.

PATENTED FEB. 3, 1903.

J. D. PEDERSON.
MAGAZINE FIREARM.

APPLICATION FILED JUNE 12, 1901.

NO MODEL.

5 SHEETS—SHEET 1.

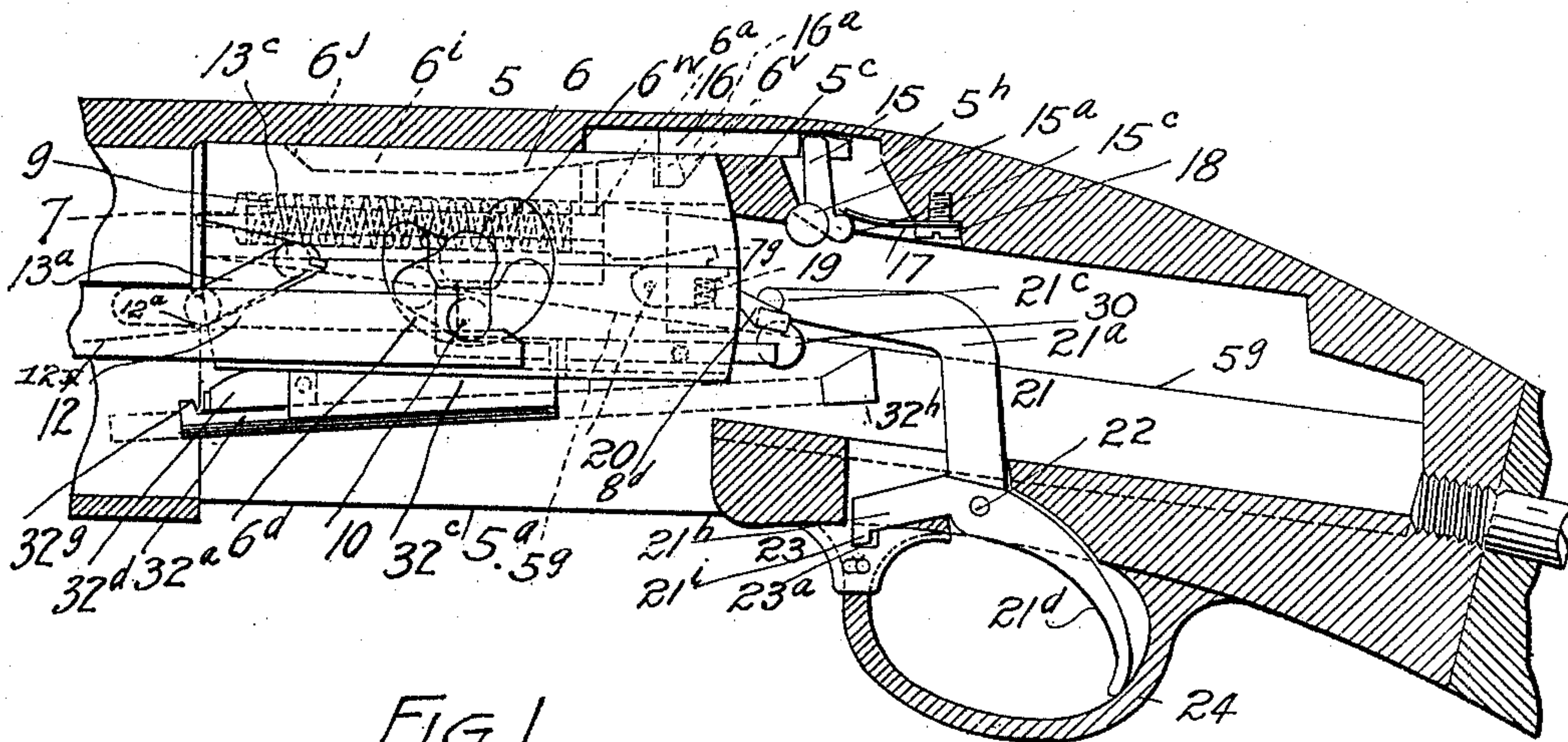


FIG. 1

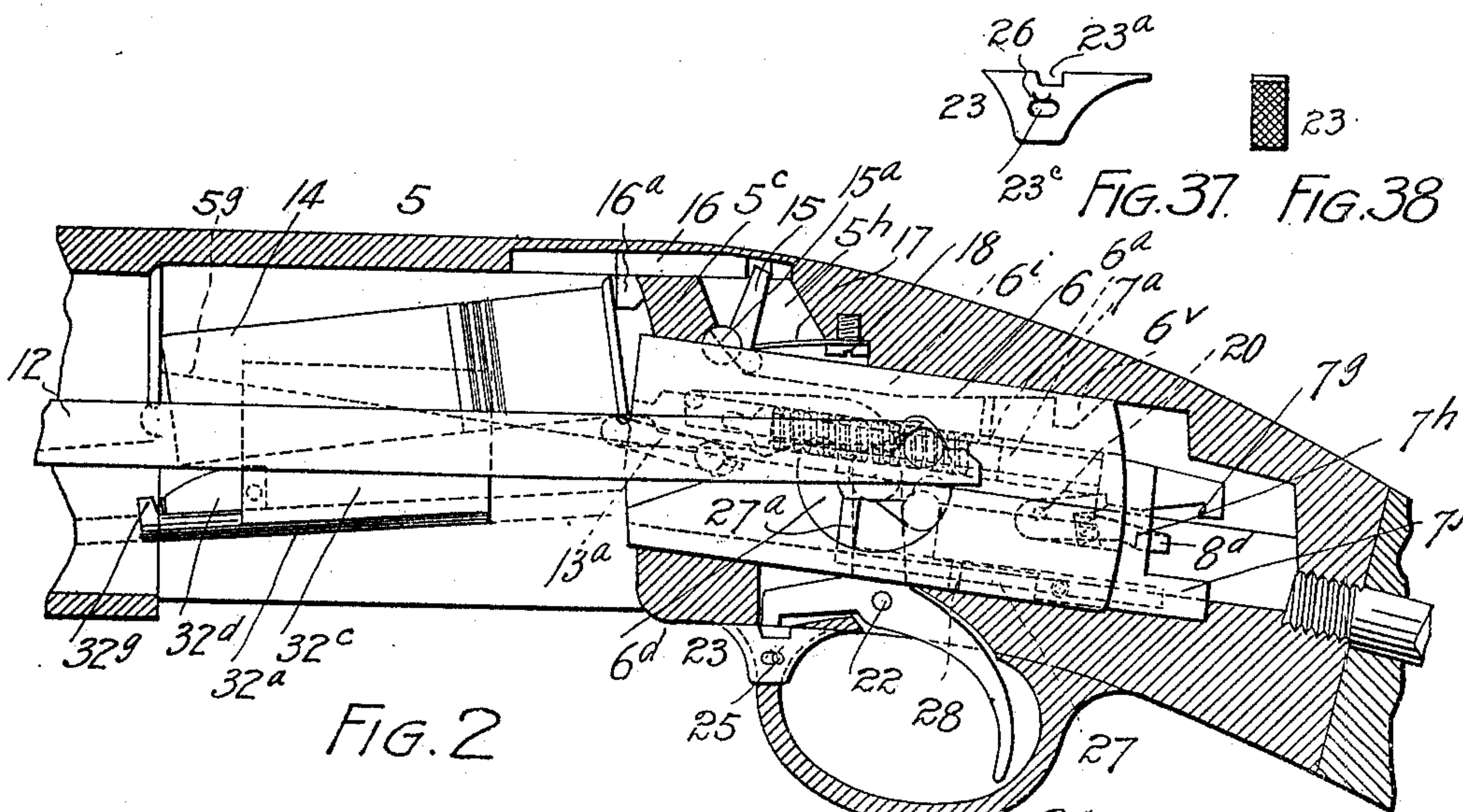


FIG. 2

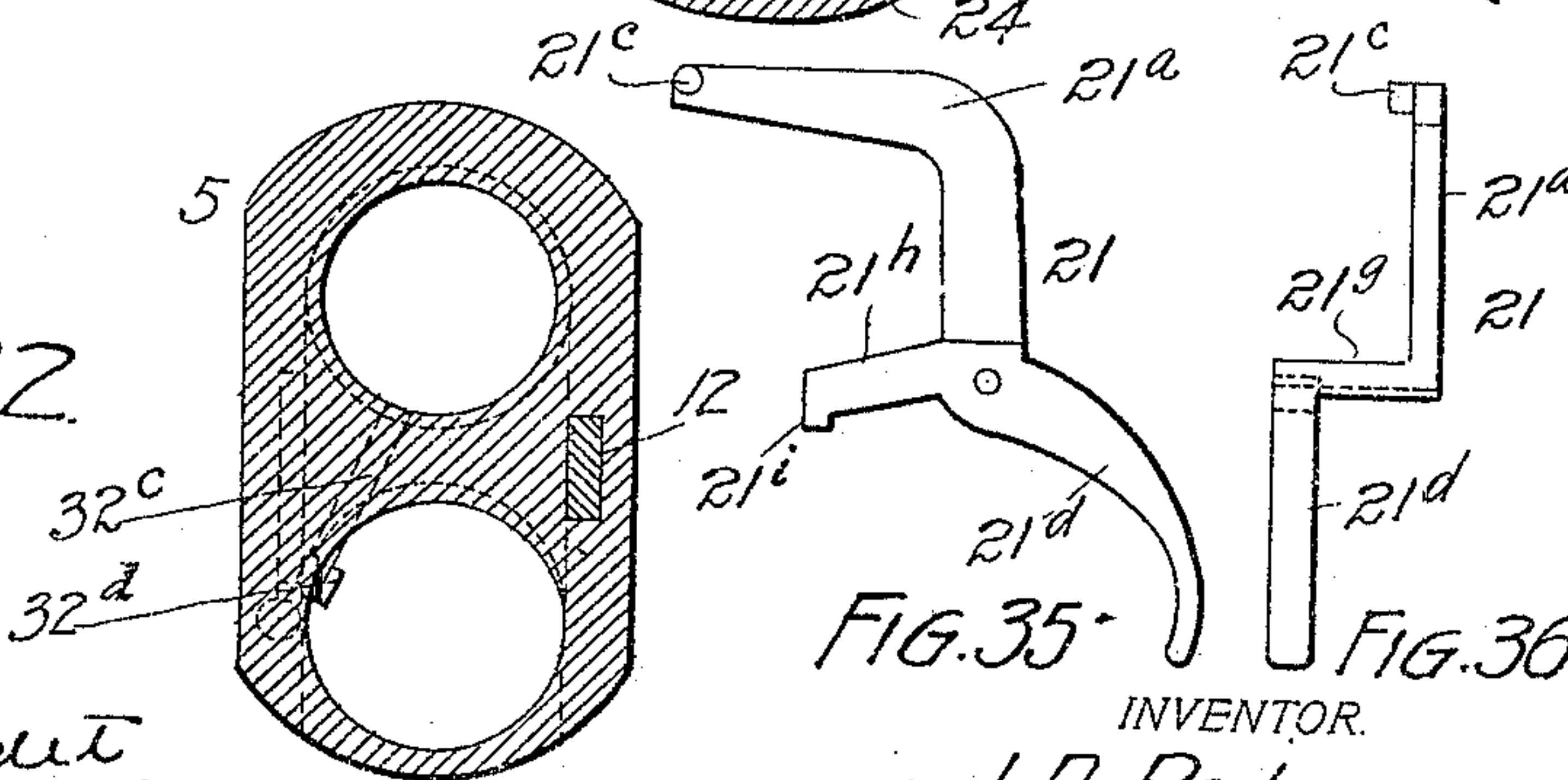


FIG. 22

FIG. 35

FIG. 36

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Dora B. Shick

INVENTOR.
J. D. Pederson
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Breech-loading,
Sliding Breech-block,
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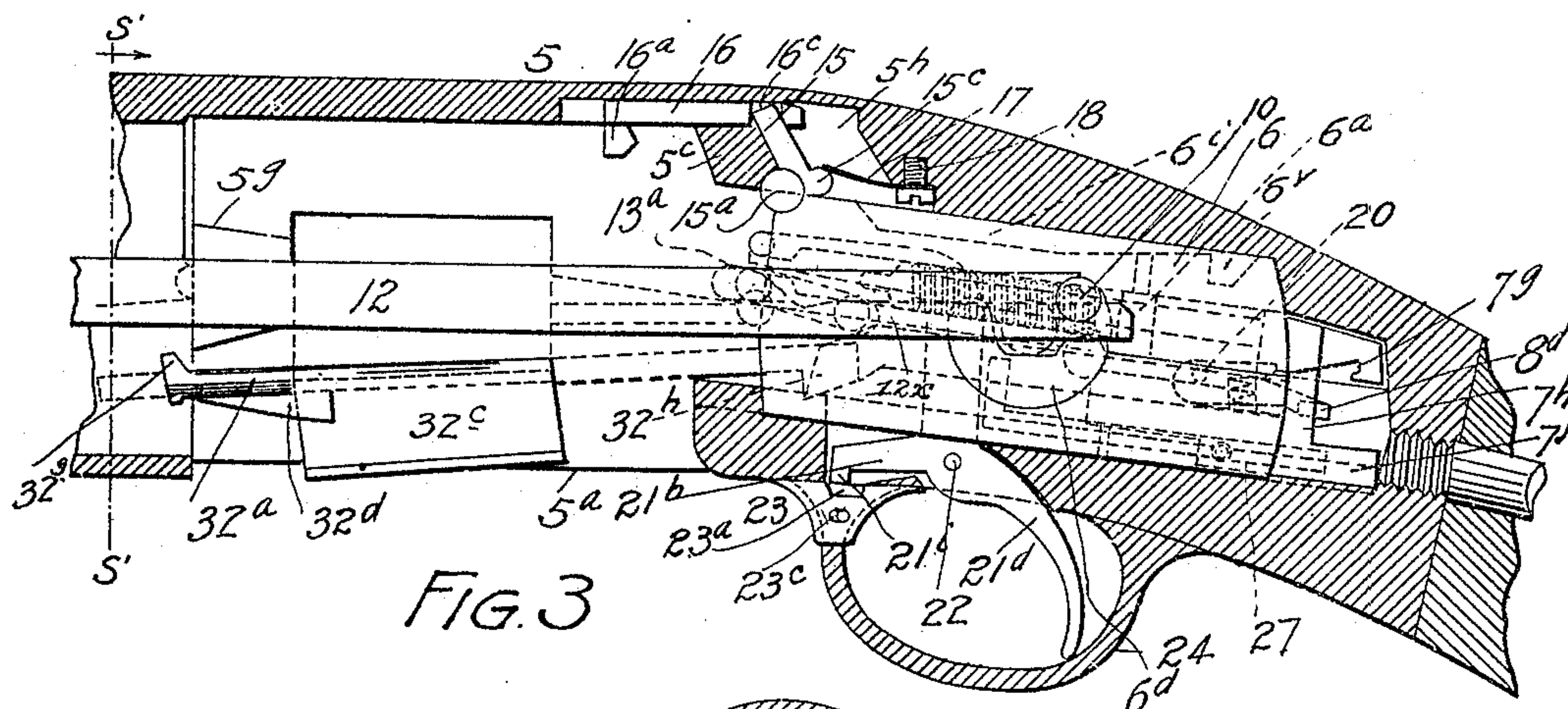


FIG. 3

FIG. 29 FIG. 28.

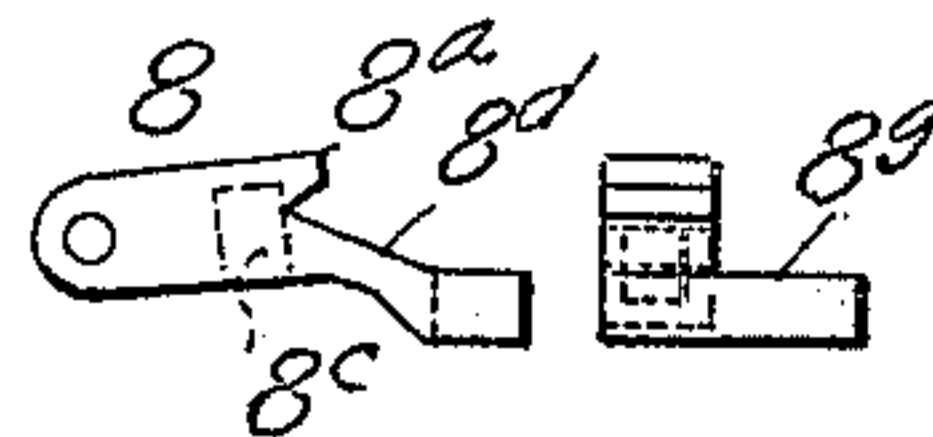
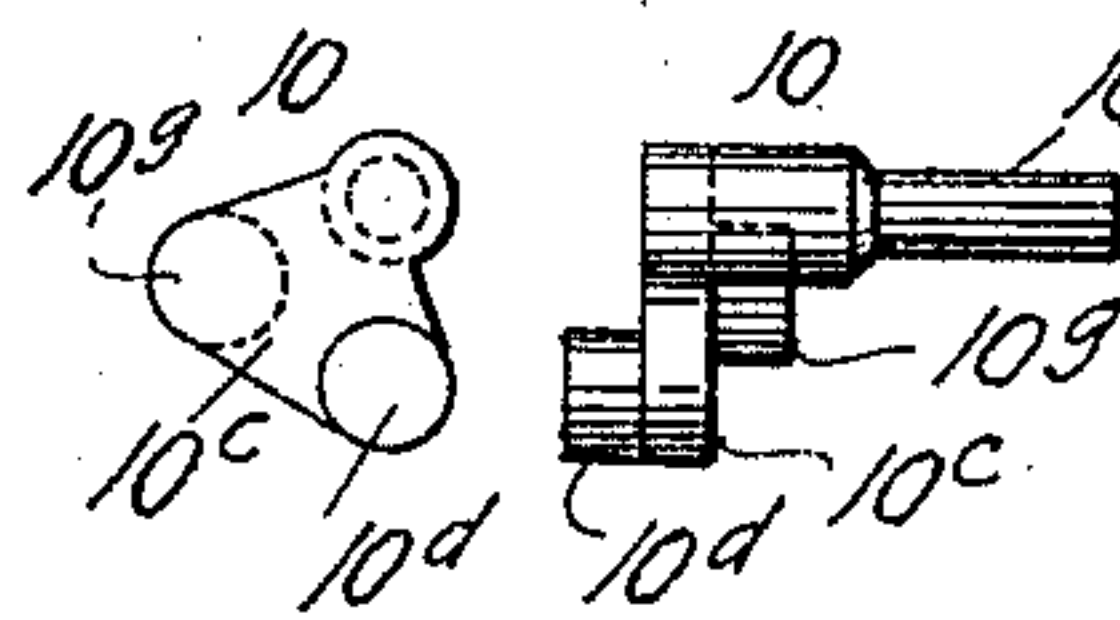


FIG. 33. FIG. 34.

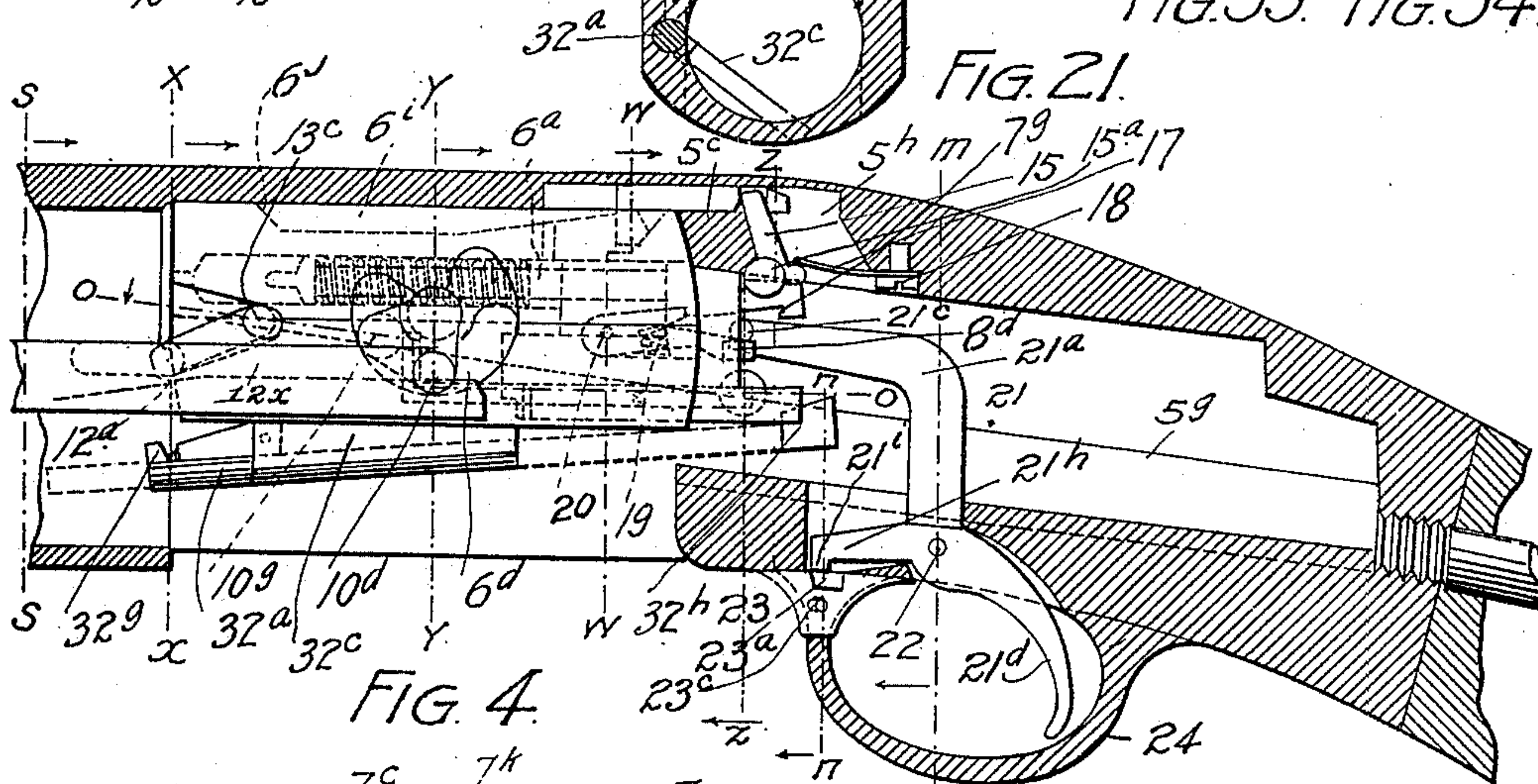


FIG. 4.

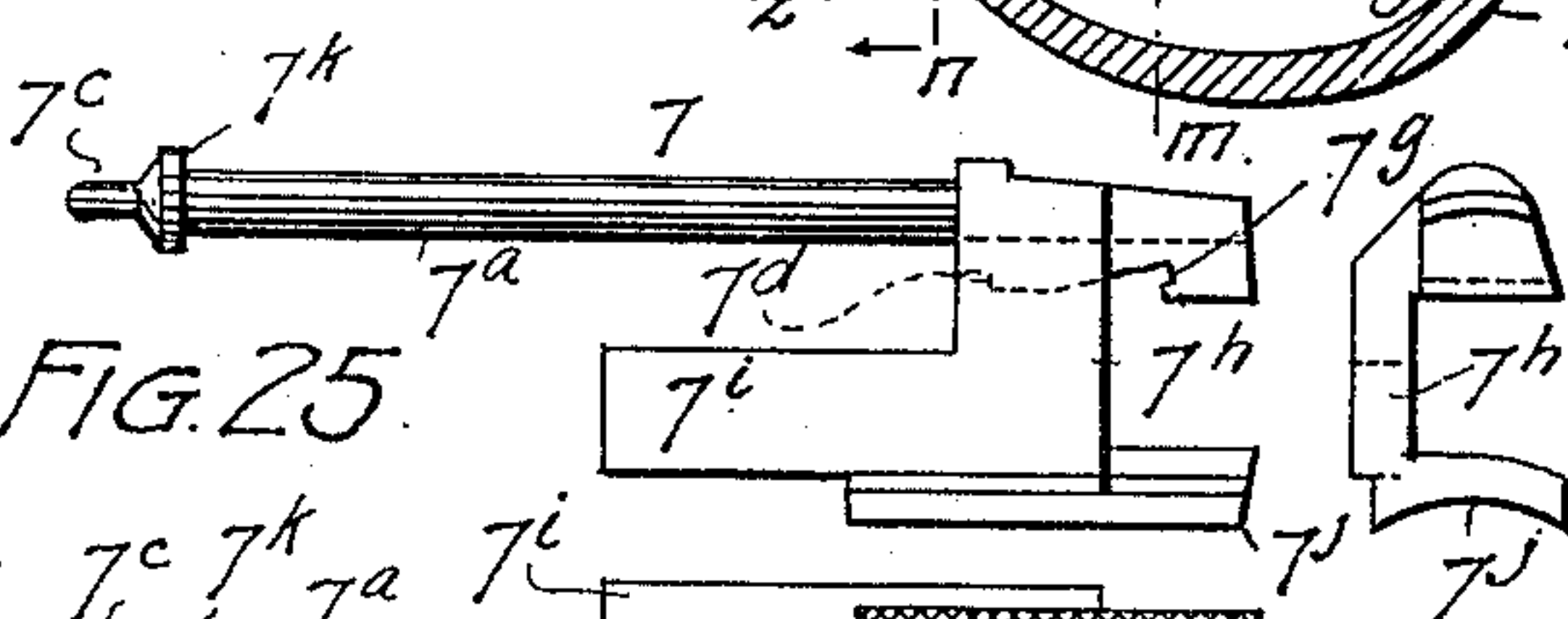


FIG. 25.

FIG. 27.

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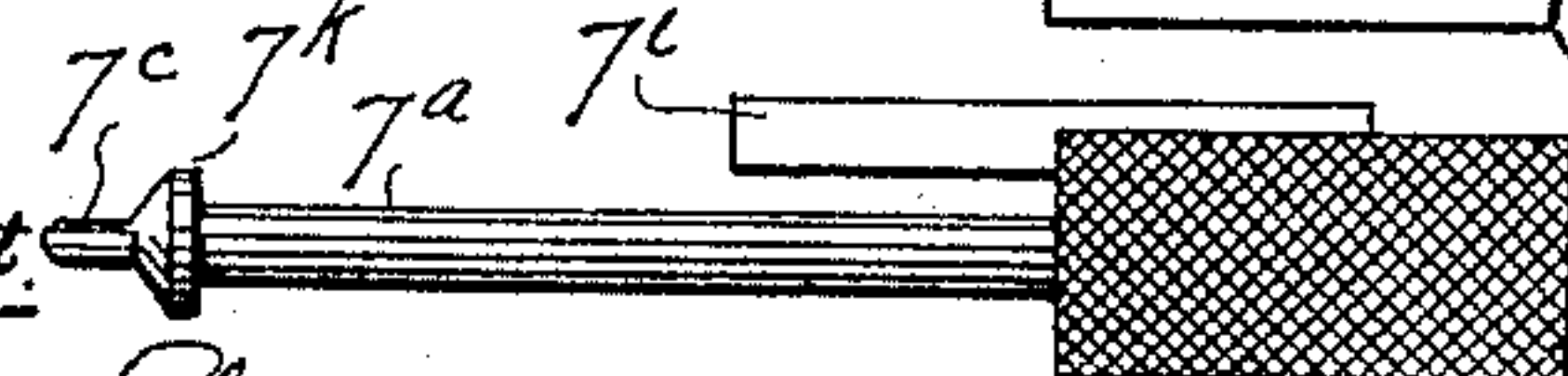


FIG. 26.

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FIREARM,
Breech-loading,
Sliding Breech-block,
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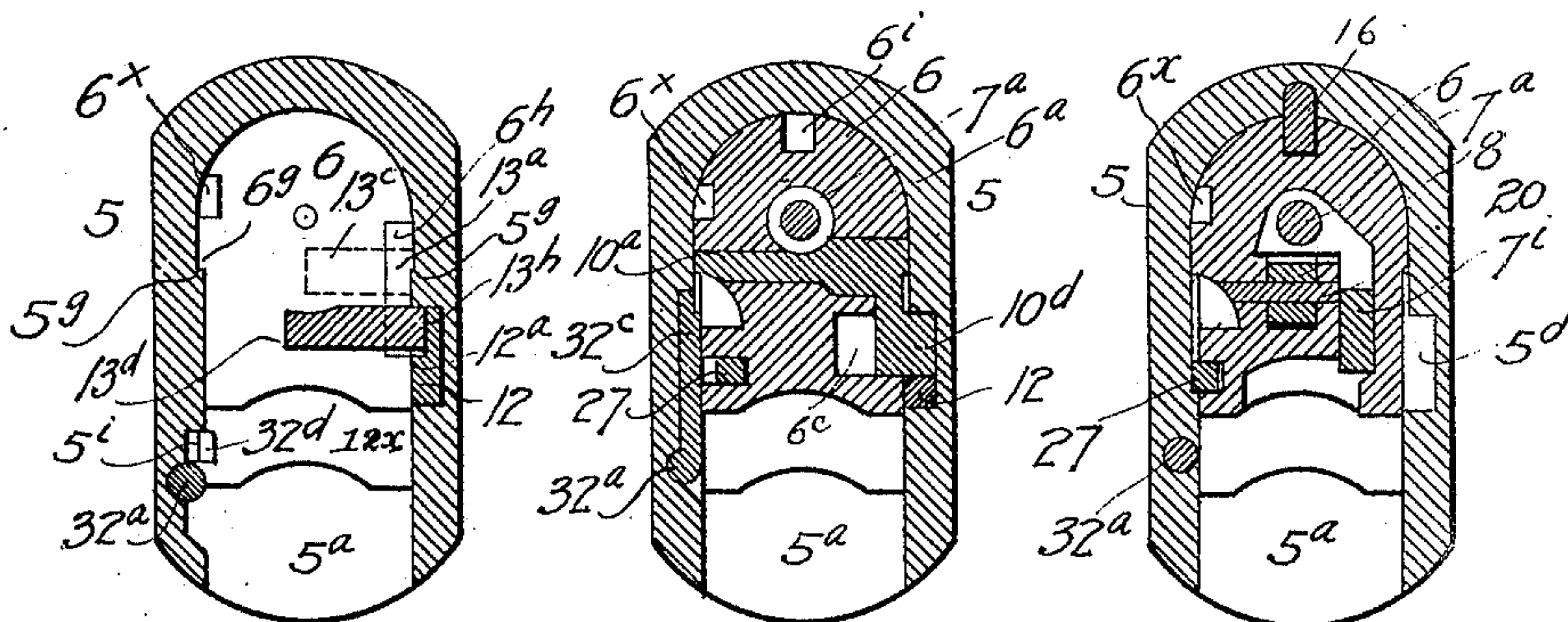


FIG. 5

FIG. 6

FIG. 7

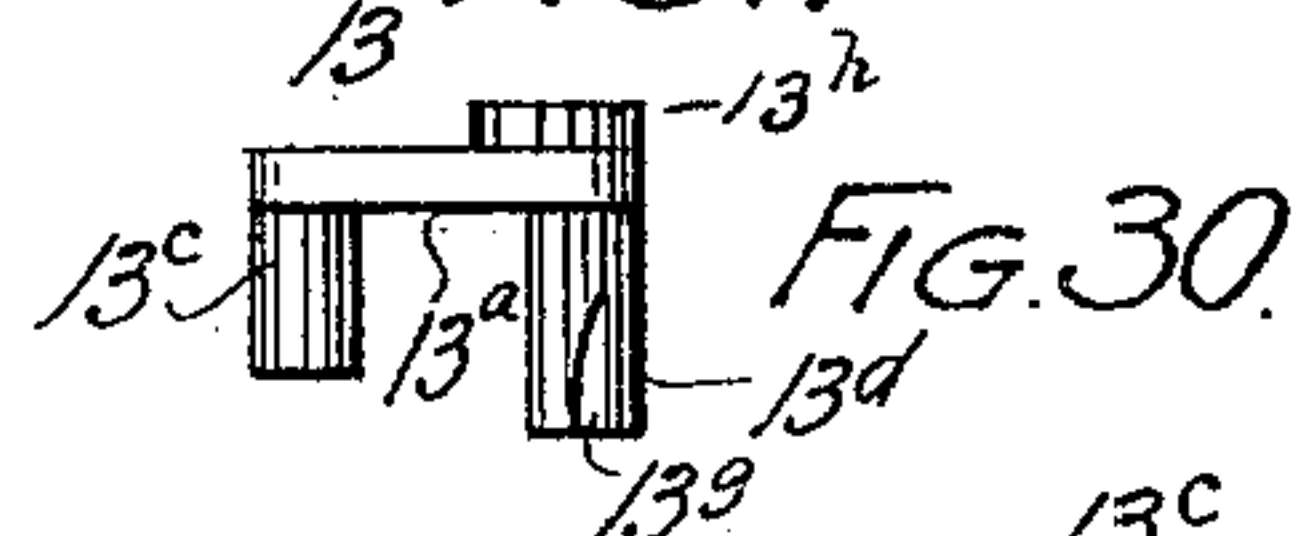


FIG. 30

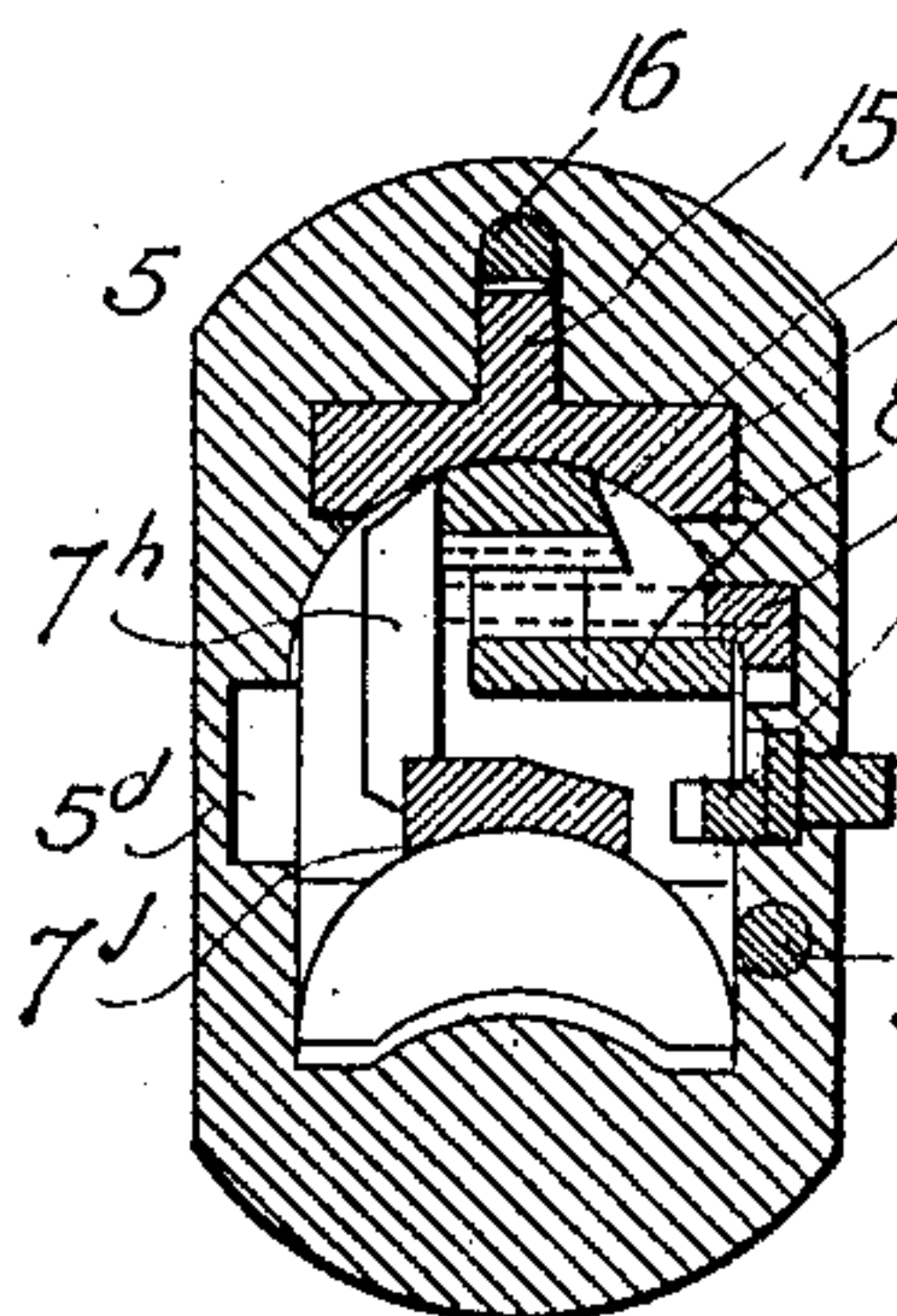


FIG. 8

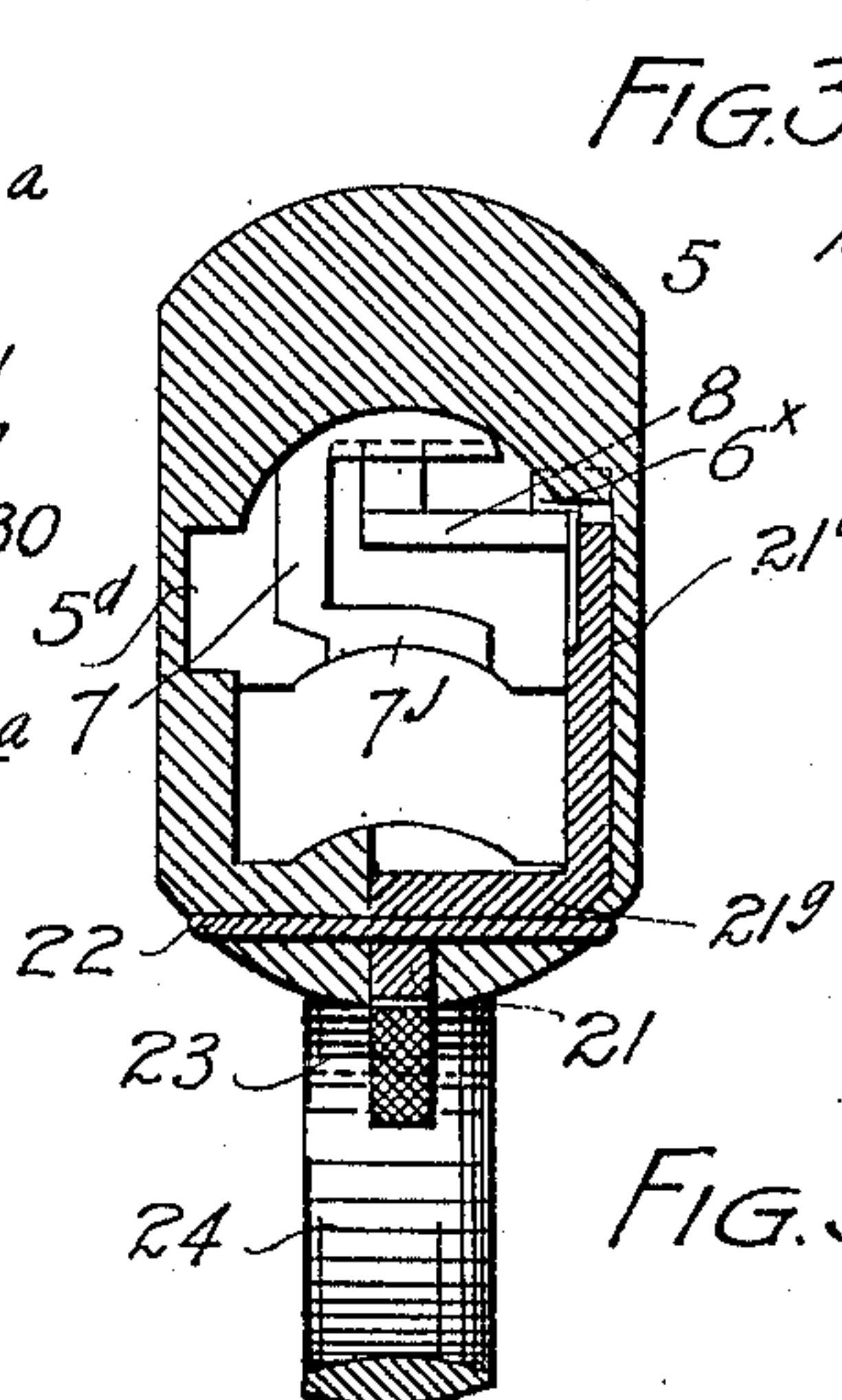


FIG. 9

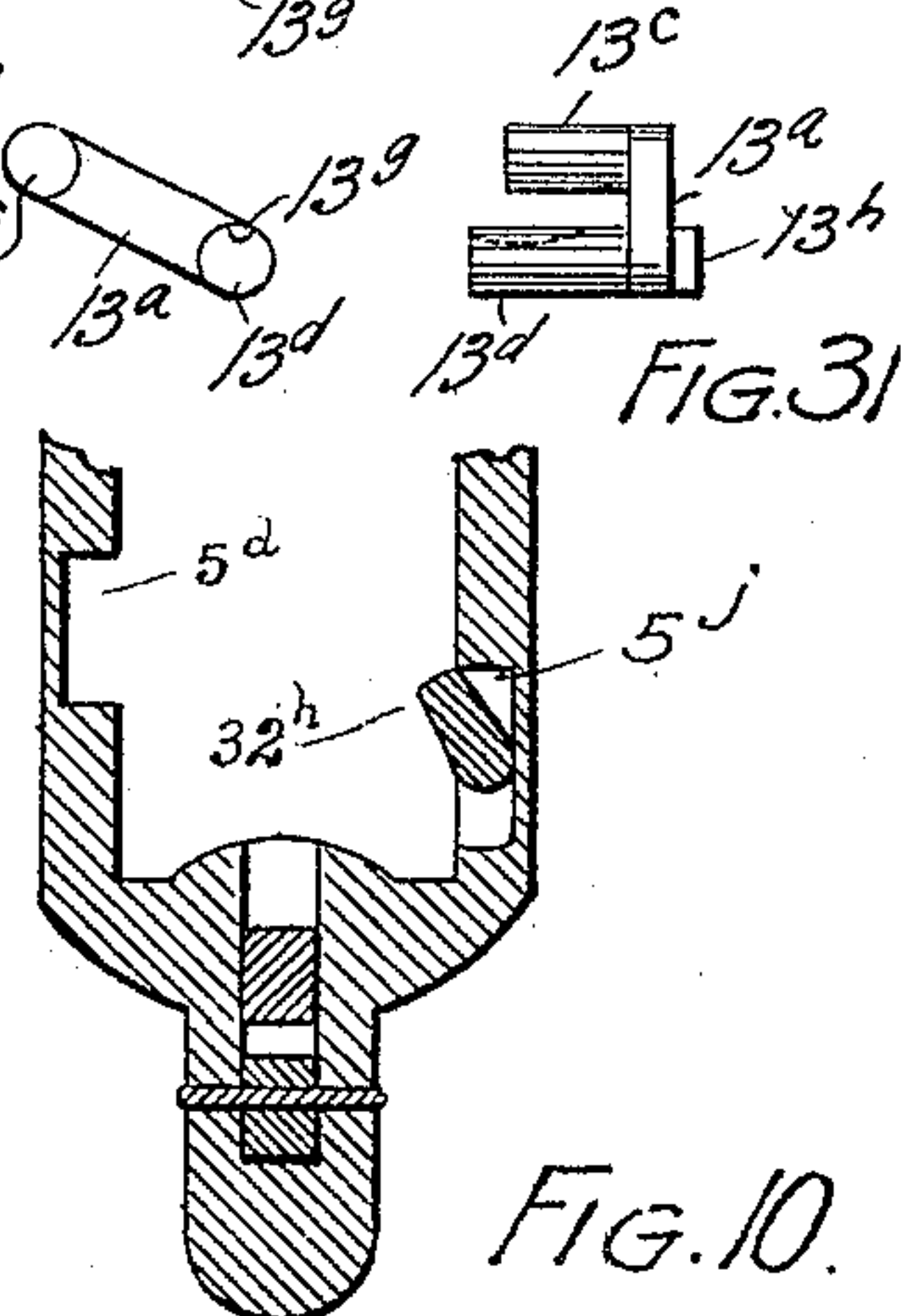


FIG. 10

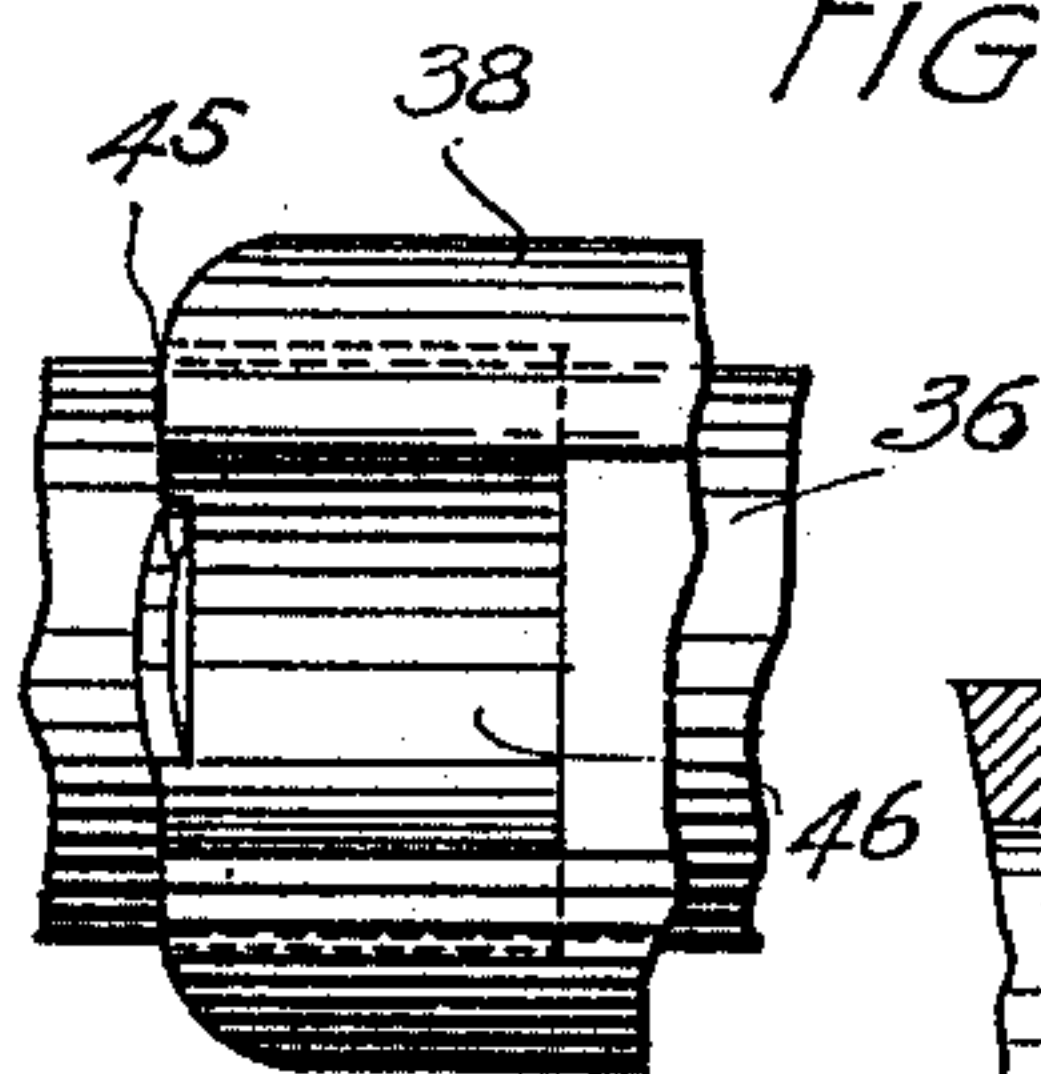


FIG. 42

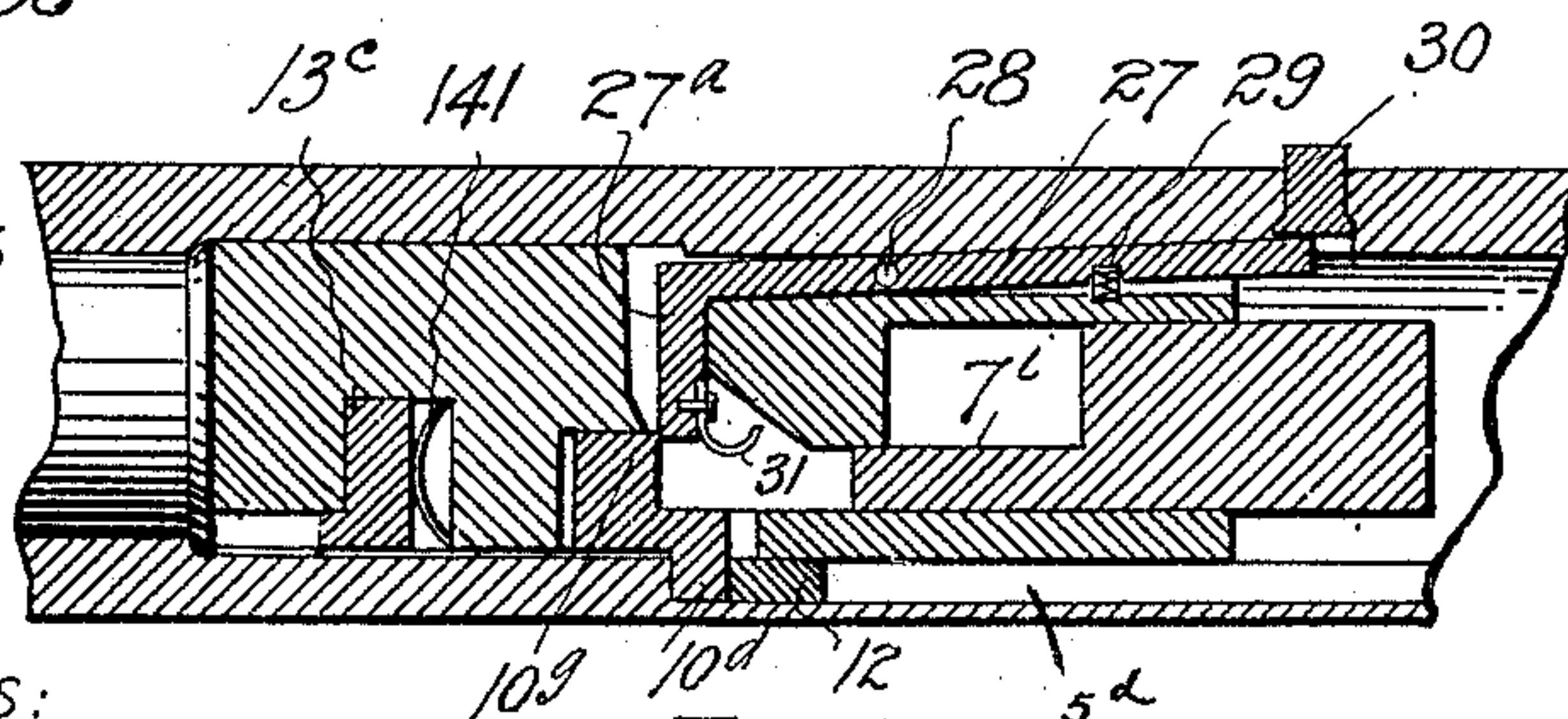


FIG. 11

WITNESSES:
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FIREARMS,
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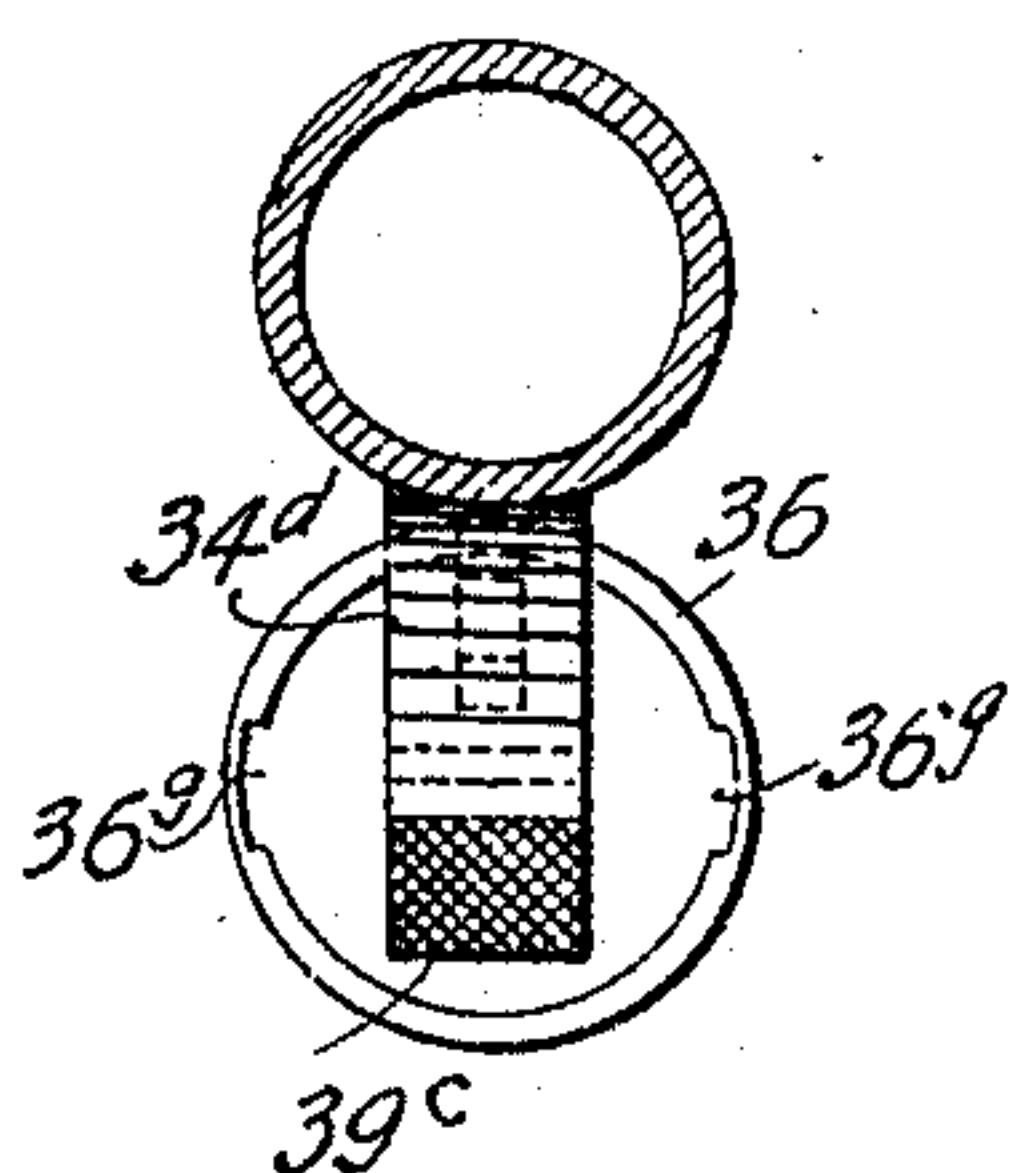


FIG. 13

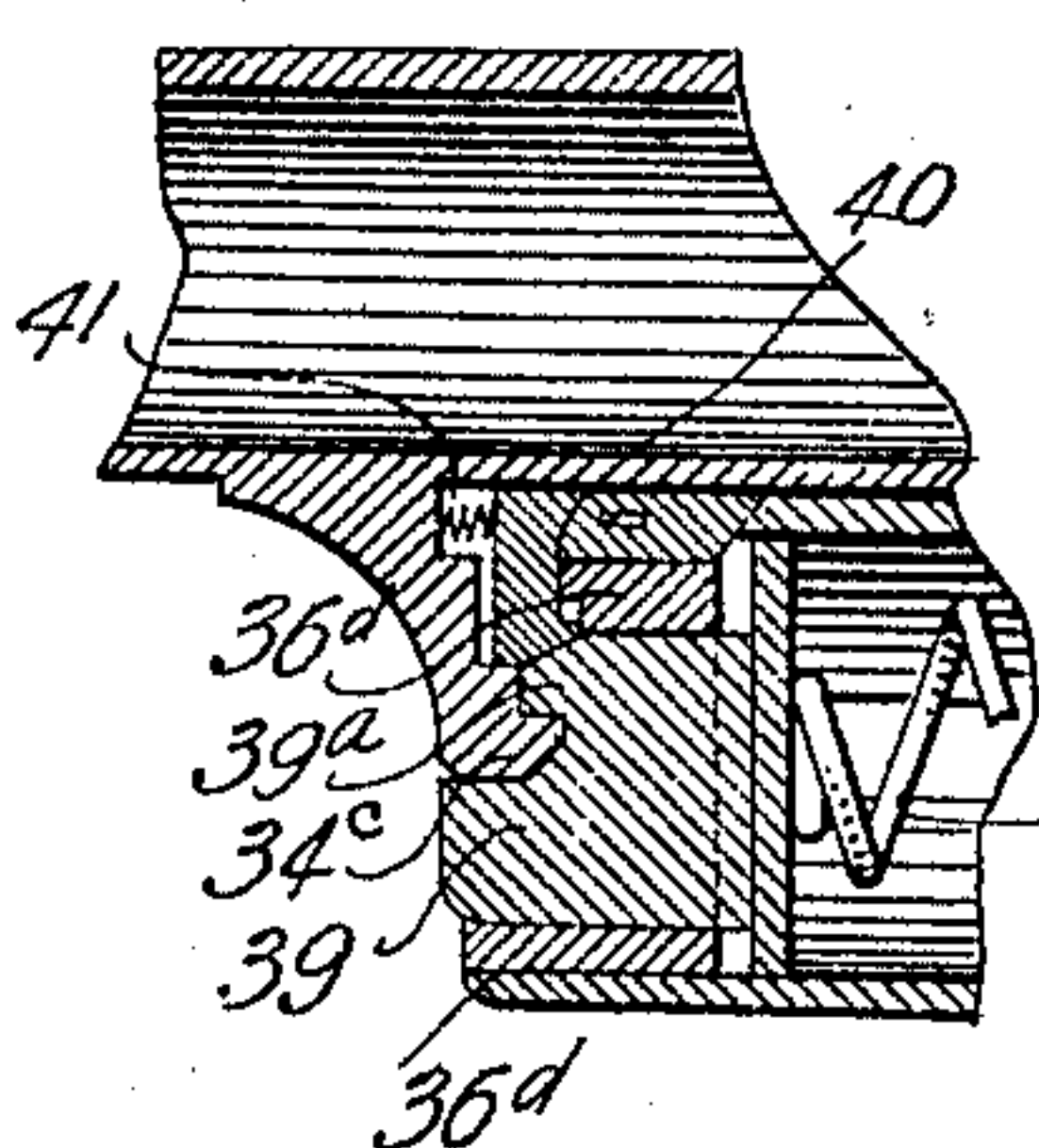


FIG. 12

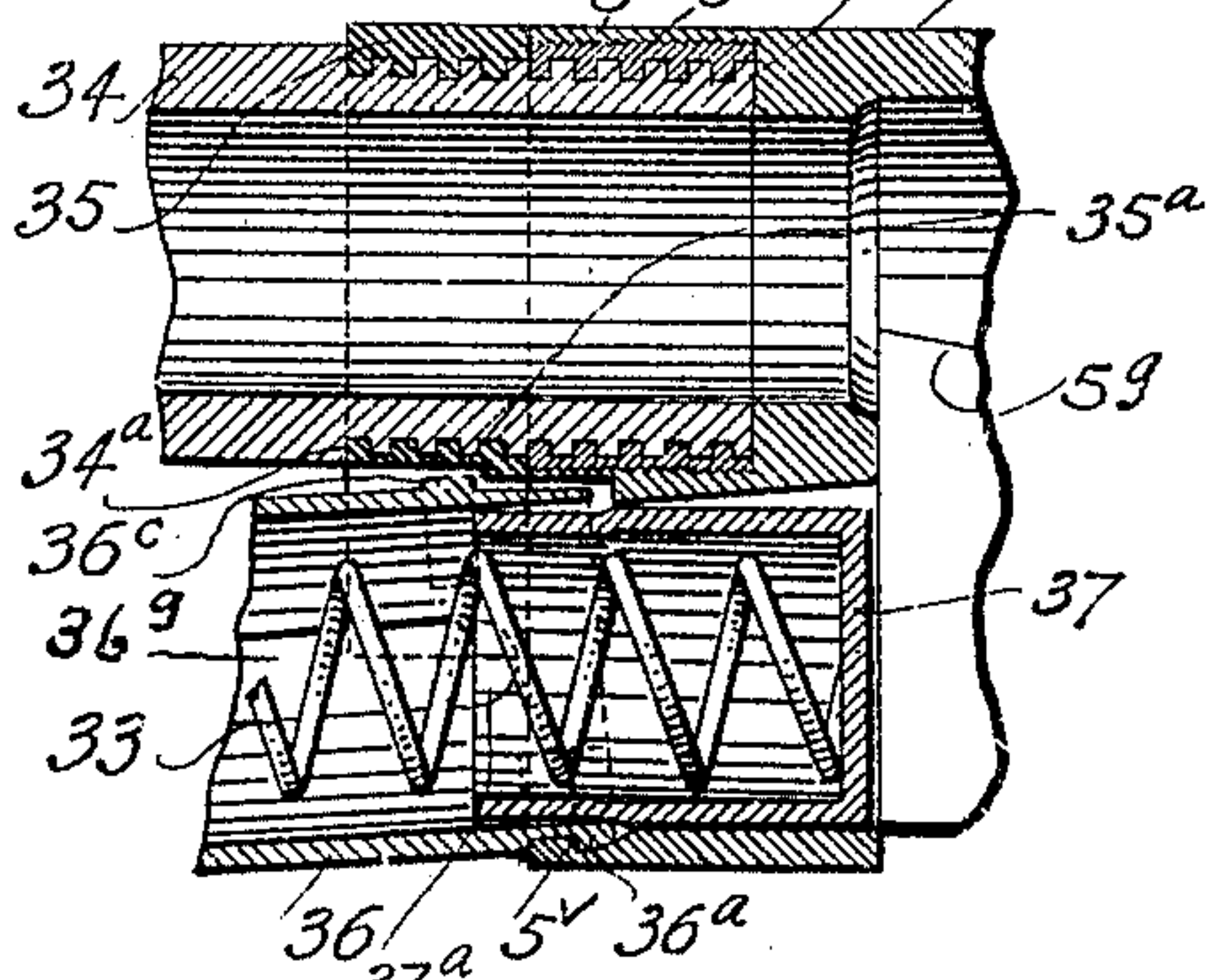


FIG. 14

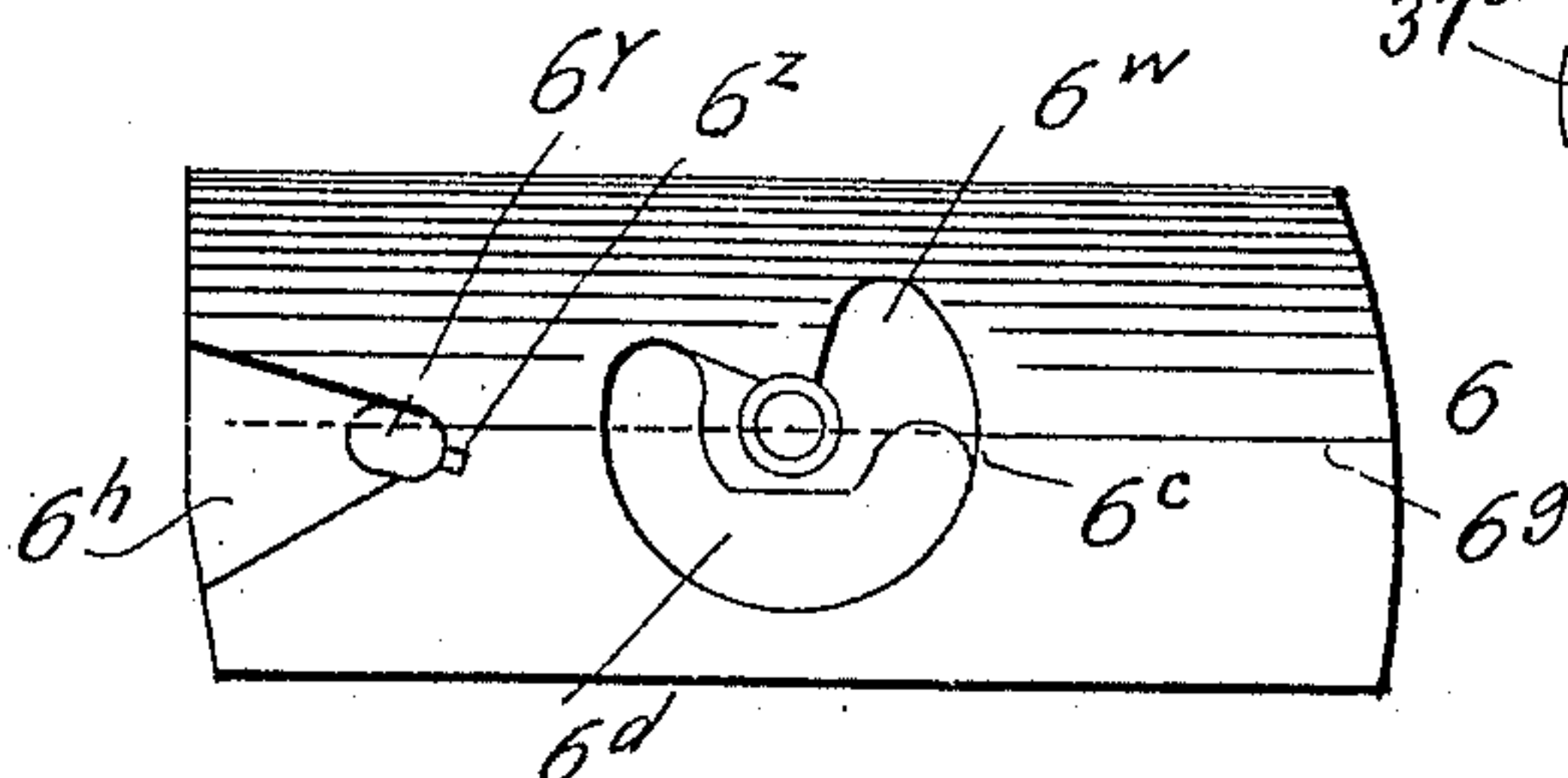


FIG. 15

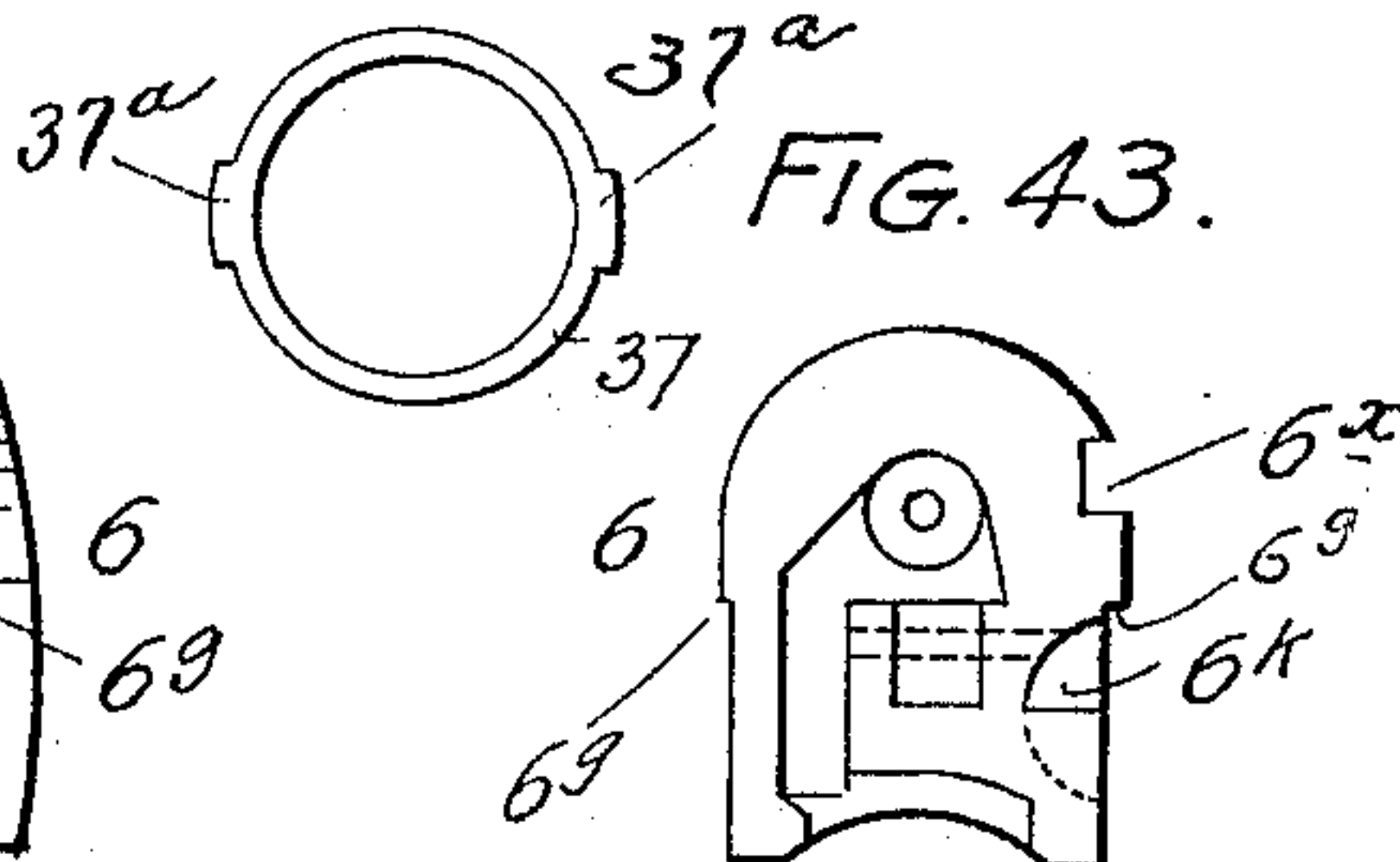


FIG. 16

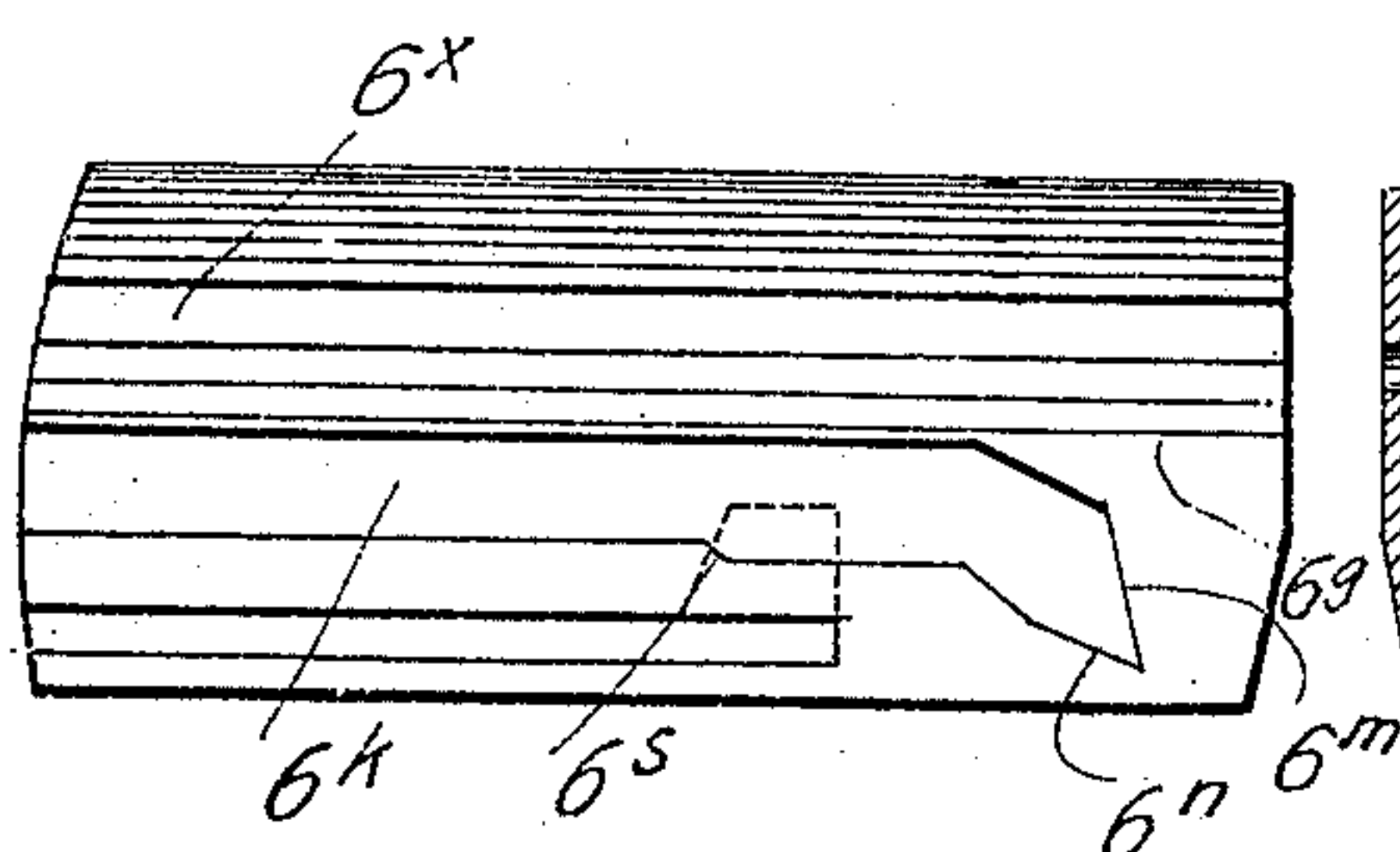


FIG. 17

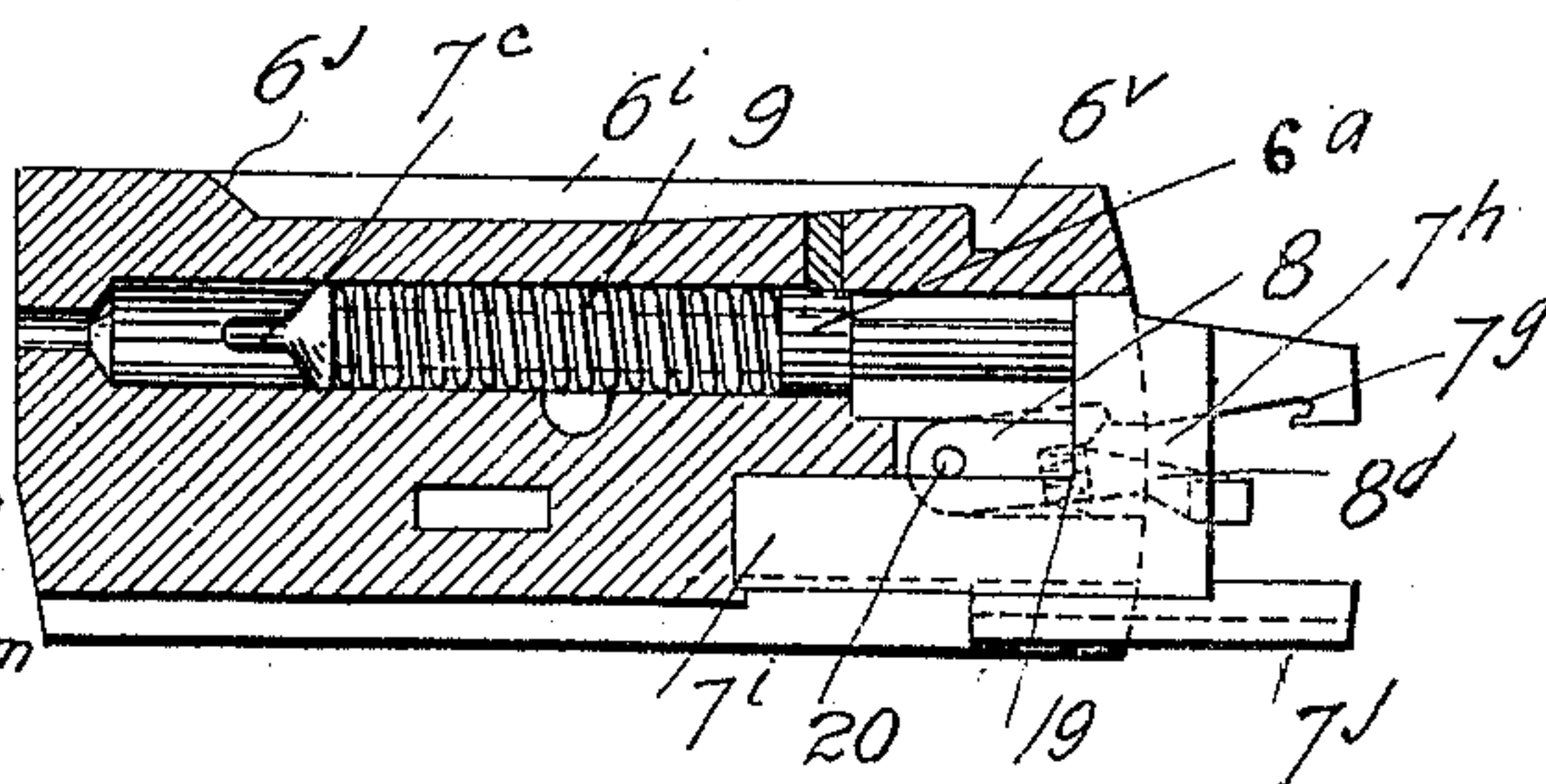


FIG. 18

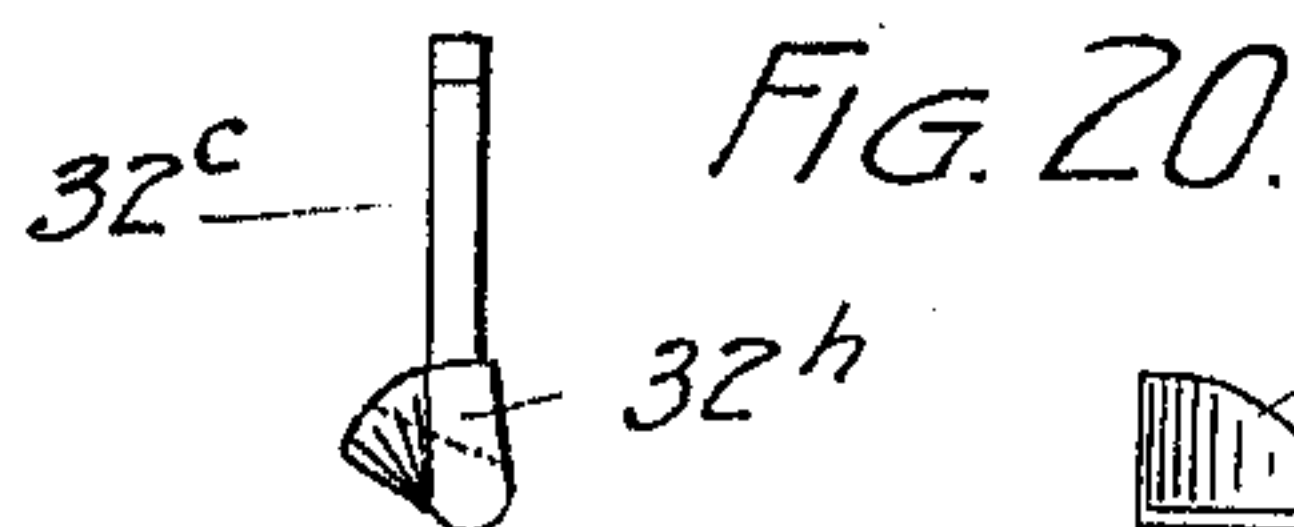


FIG. 20

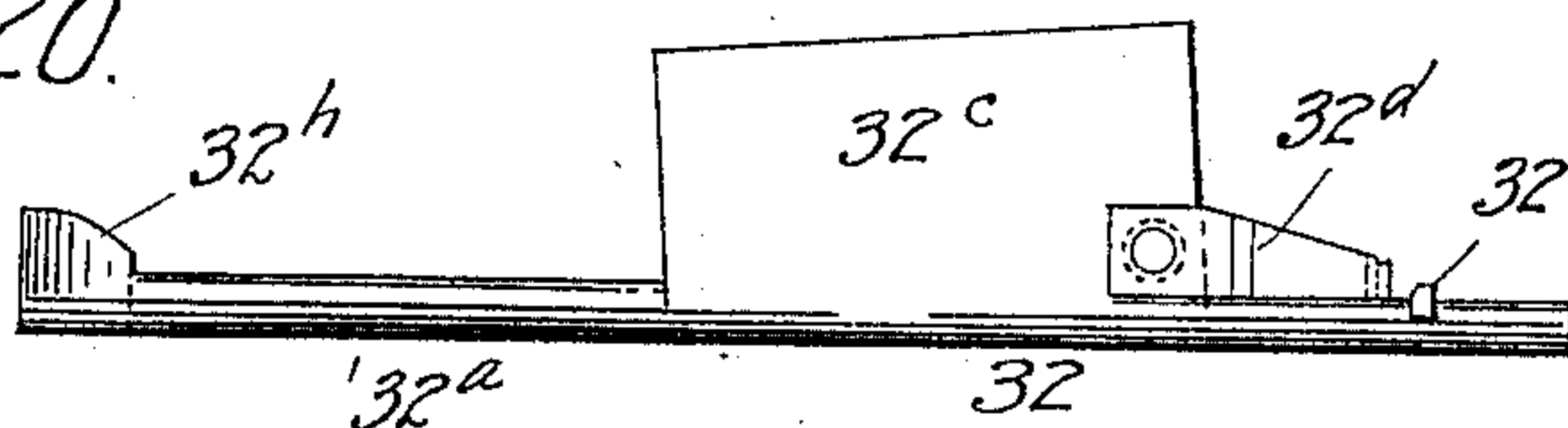


FIG. 19

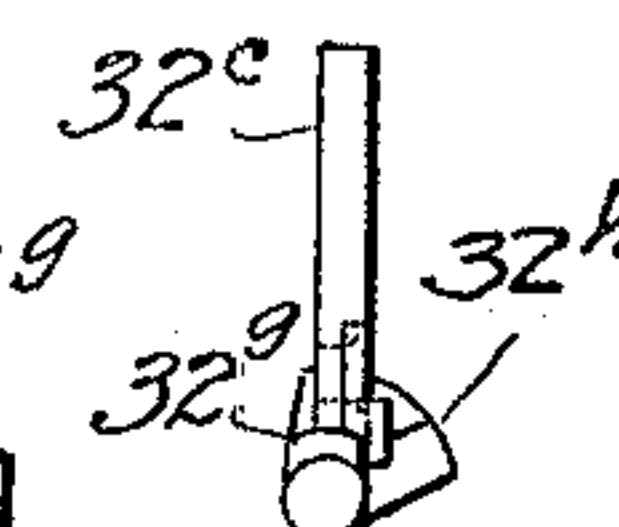


FIG. 20a

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7
Shoulder-loading,
Sliding breech-block,
Rearward, Magazine.

Draftsman.

No. 719,955.

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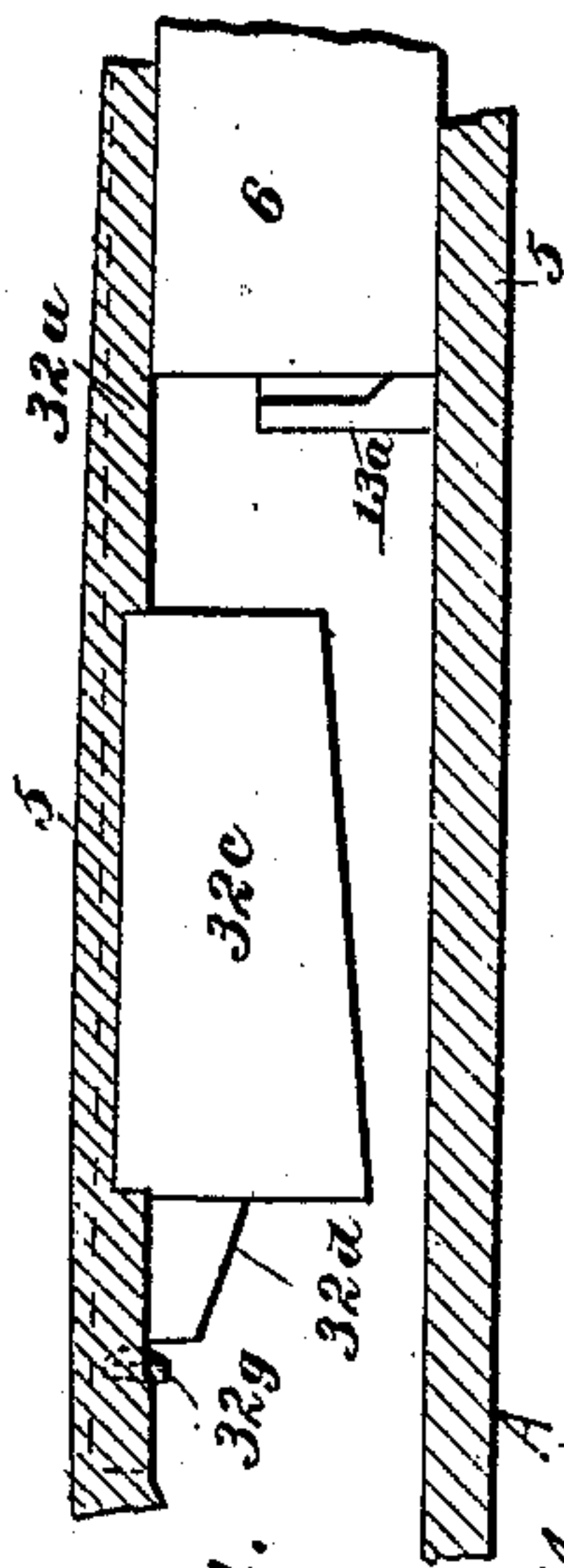


Fig. 44.

FIG. 23.

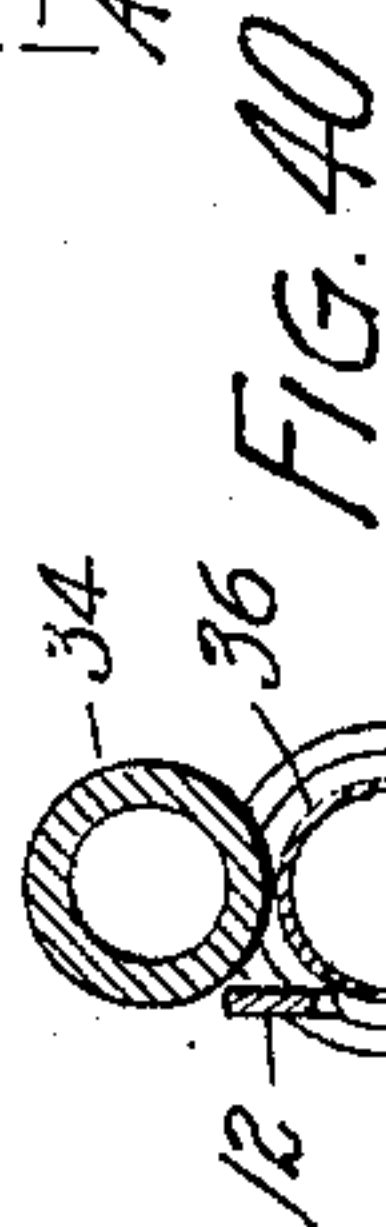
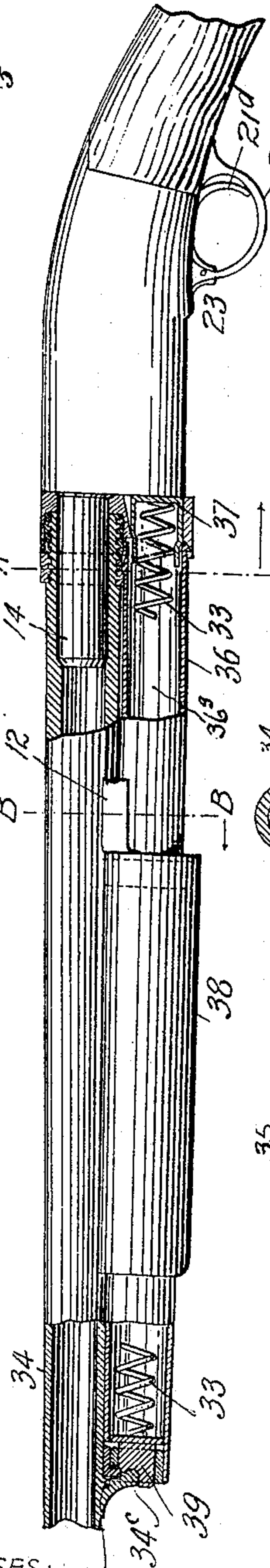


FIG. 39.

FIG. 40.

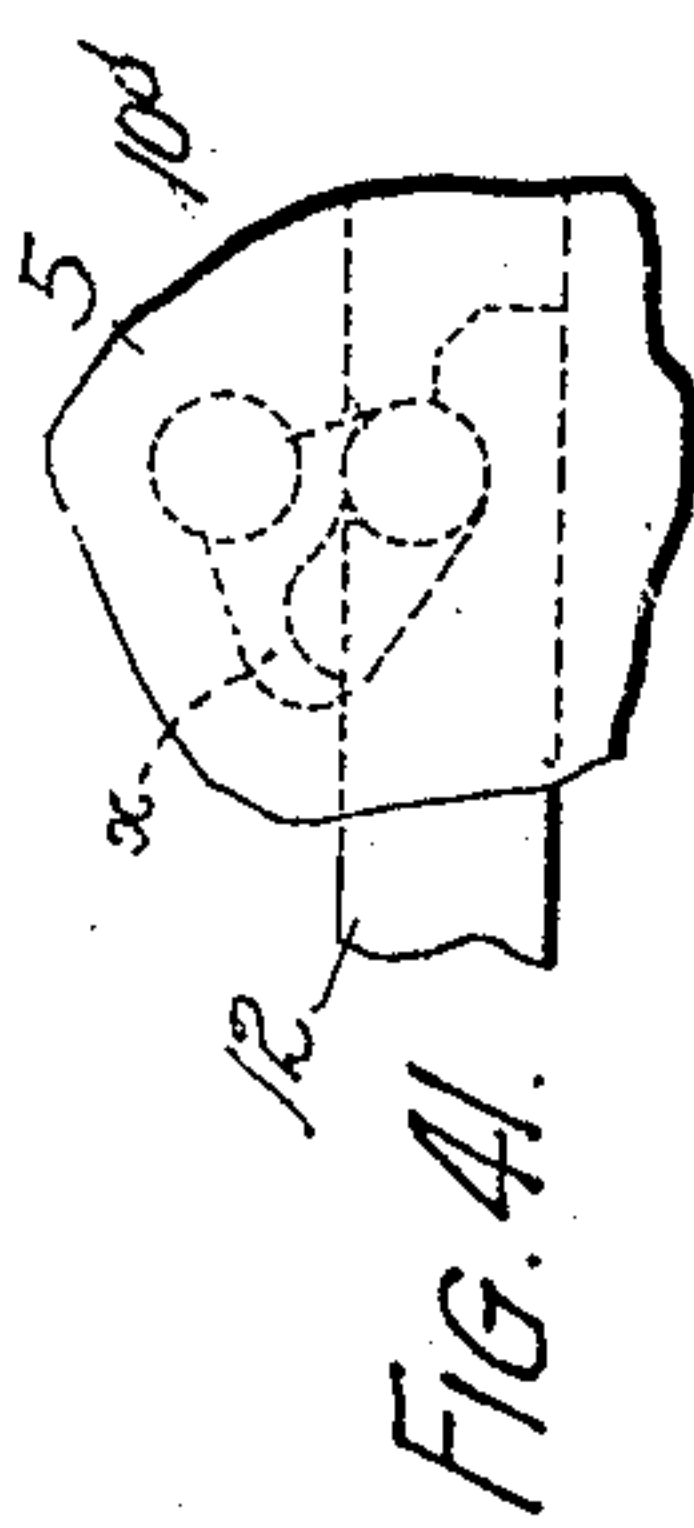


FIG. 41.

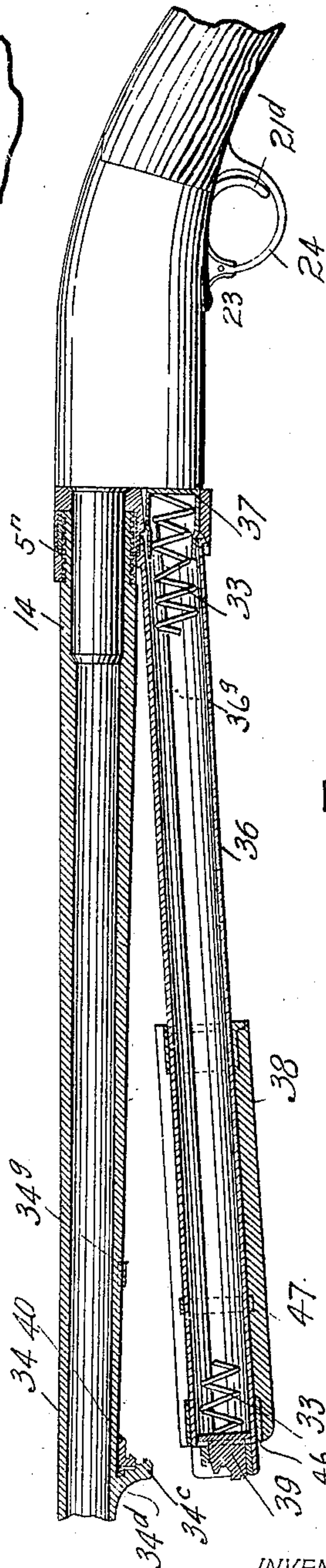


FIG. 24.

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Dora C. Shick

INVENTOR.
J. D. Pederson.
BY [Signature]
ATTORNEY.

UNITED STATES PATENT OFFICE.

JOHN D. PEDERSON, OF DENVER, COLORADO.

MAGAZINE-FIREARM.

SPECIFICATION forming part of Letters Patent No. 719,955, dated February 3, 1903.

Application filed June 12, 1901. Serial No. 64,322. (No model.)

To all whom it may concern:

Be it known that I, JOHN D. PEDERSON, a citizen of the United States of America, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Magazine-Guns; and I do 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in magazine-guns; and it consists of the features, arrangements, and combinations hereinafter described and claimed, all of which will be fully understood by reference to the accompanying drawings, in which is illustrated an embodiment thereof.

In the drawings, Figure 1 is a central vertical longitudinal section taken through the receiver, showing the inclosed mechanism in elevation, the parts being in the position which they occupy immediately after the gun is fired or the cartridge exploded. Fig. 2 is a similar section showing the breech-block retracted to cock the gun, the sear being in engagement with the forward notch or shoulder of the firing-pin. This is the position of the parts immediately before the shell is thrown out of the receiver. Fig. 3 is a section showing the breech-block fully retracted or open, the shell having been expelled or ejected. Fig. 4 is a section showing the breech-block in the extreme forward or locked position with the firing-pin cocked ready to explode the cartridge as soon as the trigger is pulled to disengage the sear from the forward notch or shoulder of the firing-pin. Figs. 5, 6, 7, 8, 9, and 10 are cross-sections taken on the lines $x x$, $y y$, $w w$, $z z$, $m m$, and $n n$, respectively, of Fig. 4 viewed in the direction of the arrows and shown on a somewhat-enlarged scale as compared with Figs. 1 to 4, inclusive. Fig. 11 is a section taken on the line $o o$, Fig. 4 viewed in the direction of the arrow. Fig. 12 is a fragmentary vertical longitudinal section taken through the gun-barrel and the forward extremity of the magazine-tube, showing the

parts locked. Fig. 13 is a cross-section taken through the gun-barrel forward of the magazine-tube, which is shown in elevation. Fig. 14 is a fragmentary vertical longitudinal section taken through the rear end of the gun-barrel and magazine-tube and the forward end of the receiver, the magazine-tube being partly released. Fig. 15 is a side elevation of the breech-block shown in detail. Fig. 16 is a rear end elevation of the same. Fig. 17 is a detail view of the breech-block viewed from the side opposite that shown in Fig. 15. Fig. 18 is a central vertical longitudinal section taken through the breech-block, showing the sear and firing-pin in the position when the latter is cocked. Fig. 19 is a side elevation of the carrier shown in detail. Fig. 20 is a rear end elevation of the same. Fig. 20^a is a front end elevation of the carrier. Fig. 21 is a section taken on the line $s' s'$ of Fig. 3 viewed in the direction of the arrow. Fig. 22 is a similar section taken on the line $s s$, Fig. 4. Fig. 23 shows the gun-barrel and magazine-tube connected with the receiver, the barrel and tube being shown partly in section. Fig. 24 is a similar view showing the magazine-tube partly detached. Figs. 25, 26, and 27 are side, underneath, and rear end views, respectively, of the firing-pin shown in detail. Fig. 28 is a rear view of the firing-pin-actuating crank shown in detail. Fig. 29 is an end elevation of the same. Figs. 30, 31, and 32 are detail views of the extractor-hook shown on a scale somewhat larger than in the general views. Figs. 33 and 34 are side and rear end elevations, respectively, of the sear shown larger than in the general views. Figs. 35 and 36 are side and rear elevations, respectively, of the trigger. Figs. 37 and 38 are side and front elevations, respectively, of the trigger safety-slide. Figs. 39 and 40 are sections taken on the lines $A A$ and $B B$, respectively, of Fig. 23 viewed in the direction of the arrows. Fig. 41 is a fragmentary section of the receiver, showing the rear end of the action-bar engaging the crank and the recess in the wall of the receiver above the action-bar channel adapted to allow the crank to revolve forward out of engagement with the action-bar as the latter is pulled forward preparatory to disconnecting the barrel from the receiver. The said recess is indicated by

dotted lines. Fig. 42 is a fragmentary top view of the magazine-tube, showing the forward extremity of the handle 38. Fig. 43 is an end elevation of the cartridge-follower. Fig. 44 is a horizontal section taken through the receiver, showing the carrier in top plan view.

The same reference characters indicate the same parts in all the views.

10 Let the numeral 5 designate the receiver or casing inclosing the chief operating parts of the mechanism, which will now be described. The receiver-chamber is open at the bottom, as shown at 5^a, for the escape of the shells and
15 for the introduction of cartridges to the magazine-tube, but is closed at the top and on both sides, thus protecting the inclosed parts and excluding the dirt and moisture as far as possible. The breech-block 6 when at its forward limit of movement, as shown in Figs. 1 to 4, engages a recoil-shoulder 5^c, formed in the upper part of the receiver and adapted to engage the rear extremity of the breech-block at the top when the latter is in the position
20 stated, or locked. The breech-block is recessed to receive the firing-pin 7, which is inserted from the rear. This firing-pin is of the construction shown in Figs. 25 to 27, inclusive, and is provided with a stem 7^a, whose forward extremity terminates in a nose 7^c, adapted to indent the primer of the cartridge and explode the latter when the trigger is pulled. The cocking-head is provided with notches 7^d and 7^e, adapted to be engaged by
35 the sear 8, which is pivoted on the spindle 20, mounted in the breech-block. The position of the sear is immediately below the rear part of the firing-pin stem. In a plane at the left of the firing-pin stem (see Fig. 27) the cocking-head is provided with a depending part 7^h, whose lower portion has a forward projection 7ⁱ. Extending below and somewhat to the rear of the projection 7ⁱ is a plate 7^j, milled on its lower surface, which is exposed through an
45 opening in the rear lower part of the breech-block, so that the firing-pin can be either cocked or let down by hand without the full force of the mainspring at will of the operator. The stem 7^a of the firing-pin is surrounded by
50 a coiled spring 9, whose forward extremity engages a shoulder 7^k in the rear of the nose 7^c, while its rear extremity bears against a shoulder 6^a of the breech-block, formed by inserting a bushing from the rear in the opening for the firing-pin stem. The position of the firing-pin and sear in the breech-block when the parts are assembled is best shown in Fig. 18. In this view the position of the lower part of the cocking-head is indicated
60 by dotted lines, as it would not appear in the section. In one side of the breech-block and at about the center thereof is formed a curved recess 6^c, in which a crank or movable device 10 is adapted to turn. This crank is provided with a spindle 10^a, engaging a transverse opening formed in the breech-block, in which the spindle is free to revolve. The arm or tri-

angular part 10^c of the crank is provided with two lugs 10^d and 10^e, extending in opposite directions therefrom. The lug 10^d protrudes
70 into the groove 5^d in the left side of the receiver-wall and is engaged by a notch near the rear extremity of the action-bar 12 when the parts are assembled in operative relation. The lug 10^e engages the projection 7ⁱ of the
75 cocking-head and acts thereon to impart the cocking movement thereto when the crank is actuated by the rearward thrust of the action-bar. That portion of the recess 6^c in which the lug 10^e works is deepest and is designated
80 by the reference character 6^d, the shallower part being designated by 6^w. The lug 10^d of the crank projects into a longitudinal groove 5^d, formed in the adjacent side of the receiver-wall, said groove being adapted to receive the
85 action-bar 12. The inner surfaces of the side walls of the receiver are provided with ledges 5^s, which are inclined downwardly and inwardly from the front end of the receiver. The breech-block is provided with shoulders
90 6^s, extending parallel with the axis of the gun-barrel and adapted to rest on the inclined ledges of the receiver for a purpose hereinafter explained.

The forward extremity of the breech-block
95 is provided with a triangular recess 6^h, in which is located an extractor-hook 13, which comprises an arm 13^a, from which projects a pin 13^b, by which the arm is pivoted. The forward extremity of the arm 13^a is provided
100 with a projection 13^d, in which is formed a recess 13^c, adapted to receive the rim of the shell 14. The arm 13^a of the extractor-hook is provided with a lug 13^h, which projects in a direction opposite the part 13^d and engages
105 a longitudinal recess 12^x, formed in the adjacent side of the action-bar, whose movement is in a line parallel with the axis of the gun-barrel. Hence by reason of the engagement of the lug 13^h with the groove in the action-
110 bar the hook is maintained in position to engage the shell until the latter is removed from the cartridge-chamber while the breech-block is traveling rearwardly on the downwardly-inclined ledges of the receiver-walls, as hereinafter explained. As the breech-block is
115 moved rearwardly through the instrumentality of the action-bar the shell 14 is withdrawn from the cartridge-chamber to the position shown in Fig. 2. The ejector mechanism which then acts on the shell will now be described.

An upwardly-projecting arm 15 is pivotally mounted on a spindle 15^a, journaled in the receiver-wall above the breech-block chamber.
125 The arm 15 projects upwardly into a recess 5^h, formed in the receiver-wall. This arm is provided with a lug 15^c, projecting downwardly from the spindle and engaging a longitudinal groove 6ⁱ, formed in the top of the
130 breech-block. At the forward extremity of the groove is located an inclined shoulder 6^j, which acts on the projection 15^c to turn the arm 15 on its pivot and throw the arm for-

wardly. Located in a groove in the receiver-wall in front of the arm 15 is a slide 16, having a downwardly-projecting lug 16^a formed on its front end. As the breech-block continues its rearward movement from the position shown in Fig. 2 to the position shown in Fig. 3 the slide 16, actuated by the arm 15, which engages a recess 16^c therein, acts on the shell to disengage it from the extractor-hook and throw it downwardly through the opening 5^a and out of the receiver. A spring 17 is attached to the upper wall of the receiver by a screw 18. This spring is located in the rear of the ejector mechanism and bears on the projection 15^c, whereby the ejector-arm 15 is normally held in its rearward position, or that shown in Fig. 2 of the drawings. When the breech-block is in the position shown in Fig. 1, the projection 16^a of the slide is located in a recess 6^v, formed at the rear extremity of the groove 6ⁱ.

During the rearward travel of the breech-block, which is actuated by the action-bar, the latter engages the projection 10^d of the crank 10 and turns the latter sufficiently to cause its part 10^e to act on the part 7ⁱ of the cocking-head and move the latter in the breech-block sufficiently to allow the sear 8 to engage a second notch 7^d of the cocking-head, whereby it is held in the cocked position. The sear is normally pressed upwardly by a coil-spring 19, seated in the breech-block. When the breech-block begins its rearward travel, the projection 8^a of the sear engages the first notch 7^e of the cocking-head. The forward extremity of the sear is pivotally mounted on the breech-block, as shown at 20. The sear is provided with a recess 8^c for the spring 19, a part 8^d projecting rearwardly from the said recess and a lateral arm 8^e projecting to the right of the rear extremity of the part 8^d. (See Fig. 34.) When the breech-block is in the rearmost position, the gun is said to be open. During the opening action the firing-pin is cocked and the shell extracted and ejected and the carrier is moved downward, releasing a shell from the magazine. The breech-block must then be moved forward to the locked position. (Shown in Fig. 4.) This is accomplished by the forward movement of the action-bar. When the breech-block is in this position, the sear is brought into the position to be engaged by the trigger 21, which is pivoted in the receiver, as shown at 22. The upper forwardly-projecting arm 21^a of the trigger is provided at its forward extremity with a lug 21^c, which engages the part 8^e of the sear from above when the parts are in the position shown in Fig. 4. This lug 21^c of the trigger projects into a longitudinal groove 6^x, formed in the right side of the breech-block. Between the lower arm 21^d and the upper arm 21^a is an offset 21^e, extending at right angles to the said arms. By reason of this offset the arm 21^a is located considerably to the right of the arm 21^d. (See Figs. 35 and 36.) The trigger is also

provided with a lower arm 21^b, extending forwardly in the plane of the arm 21^d and provided with a downwardly-projecting lug 21ⁱ, adapted to enter a recess 23^a, formed in the upper side of a small safety-slide 23, movably mounted in the forward upper part of the trigger-guard 24 by means of a pin 25, passing through a slot 23^c, formed in the slide. A small leaf-spring 26 bears on the pin from above and is adapted to hold the slide in the adjusted position. The slide is adjustable back and forth by the thumb or finger of the user of the gun. When the slide is in the forward position, the recess 23^a is in position to receive the projection 21ⁱ of the trigger, thus allowing the trigger to be pulled. When in the rearward position, however, the upper part of the slide forward of the recess is located immediately below the trigger-lug 21ⁱ and prevents the pulling of the trigger. The slide may be adjusted to occupy this last-named position after the cocking of the gun, to prevent the firing of the gun by the accidental pulling of the trigger. When the user is ready to fire, the slide may be quickly moved forward by the trigger-finger. When the firing-pin is in the cocked position and the breech-block locked, the action-bar 12 and the crank 10 are locked against rearward movement by the horizontal swinging lever 27, fulcrumed in the right-hand side of the breech-block, as shown at 28. (See Figs. 7 and 11.)

The terms "right" and "left" when used in this specification, except when otherwise specified, will refer to the position of the parts when the gun is held in the position for use. The side at the right hand of the user is termed the "right" and the opposite side the "left." The breech-block is recessed to receive this lever and allow it to act. The right wall of the receiver is also recessed to allow the rear arm of the lever to project thereinto. This lever is normally held in the position shown in Fig. 11 by a coil-spring 29, seated in suitable recesses formed in the lever and breech-block, respectively. The normal position of the lever may be changed by a button 30, seated in the wall of the receiver, and whose inner extremity is adapted to engage the rear arm of the lever when the breech-block is at its forward limit of movement. When the firing-pin is cocked and the breech-block in the forward position, (see Fig. 4,) the lever 27 is in the position shown in Fig. 11—that is to say, with its lateral projection 27^a located immediately in the rear of and engaging the lug 10^e of the crank 10, thus locking the crank from turning and preventing the rearward movement of the action-bar 12. The arm 27^a of the lever also projects upward. (See Fig. 2 and dotted lines in Figs. 1, 3, and 4.) The arm 27^a of the lever is provided on its inner extremity with a hook-shaped spring 31, secured thereto by a screw or other suitable fastening device. This spring projects slightly into the path of the projection 7ⁱ of the cocking-

head during its forward movement in response to the action of the mainspring when the trigger is pulled. Hence the firing-pin acts on the spring, giving it a tension whose tendency is to throw the lever out of the path of the crank part 10^s. As the cartridge explodes the gun recoils, except the handle 38, (see Figs. 23 and 24,) which being grasped by the hand of the user is held stationary relatively to the other parts. This recoil action throws the lever 27 and its connections rearwardly slightly, while the crank 10 is held by the action-bar against movement, thus separating the crank from the lever 27, which is thrown outwardly through the instrumentality of the spring 31, acted on by the firing-pin, as aforesaid, thus leaving the mechanism in position to allow the hammer to be re-cocked.

The carrier mechanism or the mechanism for raising a cartridge to the position in front of the chamber at the rear end of the barrel after the shell of the exploded cartridge has been extracted will now be described.

The carrier device is shown in detail in Figs. 19, 20, and 20^a. Let the numeral 32 designate the device as a whole, which is provided with a comparatively long stem or spindle 32^a, from which projects intermediate its extremities a comparatively broad wing or plate 32^c, approximately rectangular in shape. To one side of this wing is attached a leaf-spring 32^d. This spring is located close to the spindle and projects beyond the forward extremity of the wing when the parts are assembled. (See Figs. 1, 2, 3, and 4.) The forward extremity of the spring 32^d projects beyond the plane of the wing on one side, and a small lug 32^e, located slightly forward of the spring, projects beyond the plane of the wing on the opposite side. The rear extremity of the spindle, or that farthest to the left in Fig. 19, is provided with a projection 32^b, which forms oblique angles with the axis of the spindle. It may also be described as a portion of a screw-thread. This spindle 32^a is journaled in the right wall of the receiver and occupies a position slightly inclined to the axis of the barrel. The position of the carrier when not in use is shown in Fig. 6, when the wing 32^c occupies a recess in the right wall of the receiver outside of the path of the breech-block. When in this position its forward extremity lies in the wall of the receiver at the rear end of the magazine-tube, and the forward extremity of the spring 32^d occupies a position immediately in the rear of the rearmost cartridge and prevents the cartridge from entering the receiver in response to the action of the spring 33 in the magazine-tube. During this time the projection 32^e is concealed within a recess 5ⁱ, occupying a position a little in advance of the forward extremity of the spring. When the carrier is in the position stated, the rear end of its part 32^b is concealed within a recess 5^j, formed in the wall of the receiver, while its forward extremity projects

inwardly into the line of the groove 6^k, formed in the right side of the breech-block. The forward extremity of this groove is provided with an inclined face 6^m, while its lower wall is provided with inclines 6ⁿ and 6^s, the latter being somewhat in the rear of the former. Now assuming that the parts are in the relative positions shown in Fig. 1 as the breech-block is moved rearwardly, being first depressed below the stop 5^c, as heretofore explained, the forward extremity of the part 32^b first enters the straight portion of the groove 6^k. The movement of the breech-block has no effect on the carrier until the shell 14 has been extracted and ejected, as heretofore explained. Immediately thereafter and as the rearward movement of the breech-block is continued (see Fig. 3) the inclined face 6^m of the breech-block is brought into engagement with the front extremity of the part 32^b of the carrier, and the latter is turned on its spindle, throwing the wing 32^c downwardly in the receiver, forward of the breech-block, to the position shown in Fig. 3. This action throws the forward end of the part 32^b into the lower part of the recess 5^j in the wall of the receiver and brings the rear extremity of the said part into the groove 6^k of the breech-block and into contact with the face of incline 6ⁿ of the groove. During this operation the forward extremity of the carrier has turned to a position throwing the forward extremity of the spring 32^d out of the path of the cartridge into a slight recess below the axis of the carrier-spindle, (see Fig. 21,) allowing a cartridge to be forced out of the magazine-tube into the receiver and to a position on top of and supported by the wing 32^c, and the projection 32^e being a little forward of the spring extremity occupies a position behind the rim of the next cartridge and holds it in position in the magazine-tube. It will be observed that when the front end of the spring 32^d engages the rim of the rearmost cartridge the lug 32^e occupies a position forward of that rim and in position when the spindle is turned, as explained, to be brought into the path of the rim of the next cartridge as soon as the rearmost cartridge moves out of the way into the receiver. Then as the breech-block is moved forwardly, as heretofore explained, the incline 6ⁿ at the bottom and forward extremity of the groove 6^k engages the rear end of the part 32^b underneath, turning the carrier on its spindle and raising the wing 32^c to the position shown in Fig. 22, whereby the cartridge is raised into axial alinement with the cartridge-chamber at the rear end of the gun-barrel. At this stage of the operation the carrier pauses for an instant, being still beneath the cartridge and supporting it in place, in order to allow the forwardly-moving breech-block to act on the cartridge and bring its forward end into the rear extremity of the cartridge-chamber. This pause of the carrier is while the breech-block is moving the distance from the rear

end of the incline 6ⁿ to the short incline 6^s, which then acts on the carrier part 32ⁿ to turn the spindle sufficiently to return the wing of the carrier into its recess in the wall of the receiver or to its original position, the cartridge being forced into its chamber as the breech-block completes its forward movement.

The forward part 5^k of the receiver is provided with a shoulder 5^m, beyond which projects an interiorly-threaded part 5ⁿ, into which is screwed a bushing 5^s, threaded both interiorly and exteriorly. The inner threads of the part 5ⁿ and the exterior threads of the bushing are fine or have but little pitch as compared with the inner threads of the bushing. The interior bushing-threads are double to correspond with the exterior threads formed on the rear extremity of the barrel 34. Against a shoulder 34^a, formed on the barrel, is screwed a ring 35, which abuts against the part 5ⁿ and the bushing 5^s when the barrel is screwed to position. (See Fig. 14.) The function of the relatively fine and coarse threads of the bushing is to compensate for wear between the threads of the bushing and barrel. When these threads are so worn that the barrel is loose, the wear may be taken up by unscrewing the bushing a part of a turn, which will not appreciably advance the bushing or move it forward in the receiver extension, but will change the position of the coarse threads of the bushing engaging the barrel sufficiently to take up the wear or lost motion, as before explained.

The magazine-tube 36 is provided with a thimble-shaped follower 37, having lugs 37^a on opposite sides engaging grooved ways 36^s, formed longitudinally in the opposite sides of the magazine-tube. This follower when the magazine is empty is held by the spring 33 in the rear extremity of the magazine-tube. (See Figs. 14 and 23.) The follower is prevented from moving too far rearwardly in the magazine by the engagement of its lugs with the rear extremities of the ways 36^s, which terminate near the rear extremity of the magazine. The front end of the follower is cut away exteriorly to make room for the rear extremity of the magazine-tube and allow it a limited degree of movement on the lugs 37^a, which form trunnions or pivots for the tube when in the position shown in Fig. 14. The rear extremity of the magazine-tube is provided with two exterior projections 36^a and 36^c, each preferably extending about half-way around the tube. The engaging face of the lug 36^c is toward the rear and abuts against a shoulder 35^a, formed on the lower side of the ring 35, while the face of the lug 36^a is toward the front and engages a shoulder 5^v on the lower side of the receiver. When the magazine-tube is tilted by lowering its forward extremity, (see Fig. 24,) its rear extremity may be raised sufficiently to disengage the lug 36^a from the shoulder 5^v and

permit the magazine-tube to be detached from the receiver.

The handle to which the action-bar 12 is attached is slidably mounted on the magazine-tube. The forward extremity of this handle normally or when the parts are assembled engages a shoulder 34^s, formed on the lower side of the barrel, and prevents the handle from moving forward far enough to detach the action-bar from the mechanism within the receiver.

In the forward extremity of the magazine-tube is inserted a plug 39, whose inner extremity is provided with an enlarged disk shaped to fit the tube, whose forward extremity is provided with a bushing 36^d, located in front of the disk on the plug, which is normally held at its forward limit of movement by the magazine-spring 33. When the magazine-tube is locked on the barrel, (see Figs. 12 and 23,) a forwardly-projecting detent 39^a, formed integral with the plug, engages a hook 34^c, formed on a lug 34^d, projecting downwardly from the barrel in front of the magazine-tube. Movably mounted on the barrel in the lug 34^d is a dog 40, whose lower extremity is provided with a hook located slightly below a shoulder formed on the upper part of the bushing 36^d. The dog 40 is normally held at its rearward limit of movement by a spring 41. The forward extremity of the plug 39 is milled at 39^c. By pressing rearwardly upon this milled surface the plug may be forced inwardly against the spring 33 sufficiently to release the detent 39^a from its engaging hook. As soon as this is done the forward end of the magazine may be lowered until the bushing 36^d engages the dog 40. This movement will be sufficient to detach the forward end of the handle 38 from the shoulder 34^s. The handle 38 may then be moved forwardly far enough to draw the action-bar out of the receiver. This forward movement of the handle is sufficient to bring its forward extremity into engagement with the rear extremity of the dog 40, which is thereby moved forwardly enough to release the magazine-tube from the hook of the dog. The magazine may then move downwardly to the position shown in Figs. 14 and 24, when it may be detached from the receiver by a forward movement.

The opening 6^v for the pivot 13^c of the extractor-hook is somewhat elongated to permit a limited movement of the hook in a direction endwise of the breech-block to allow the hook to engage the rim of the shell, as hereinafter explained. In the rear of the recess 6^v is a small recess 6^z, in which is located a leaf-spring 141, which engages the pivot 13^c and normally holds it, as well as the body of the hook, at its forward limit of movement. When the breech-block approaches its forward limit of movement and has reached the position ready to move upward in front of the recoil-shoulder 5^c, the part 13^d of the extractor-hook engages the rim of the cartridge

and the extractor-hook is forced rearwardly against its spring 141, which is thereby placed under tension. It will be remembered that the lug 13^h of the extractor-hook engages a groove formed in the upper part of the action-bar 12. (See Fig. 5.) As the forward movement of the action-bar is continued to raise the breech-block into position in front of the recoil-shoulder a slight recess 12^a in the bottom wall of the action-bar groove is brought directly beneath the lug 13^h of the extractor-hook, and the tension of the spring 41 forces the hook forward to a position bringing its recess 13^s directly below the rim of the cartridge. Then as the action-bar is moved rearwardly to bring the breech-block below the recoil-shoulder 5^c the recess 12^a is moved to the rear of the lug 13^h, and the bottom wall of the action-bar groove, in which the lug is seated, forces the part 13^d upwardly, whereby the rim of the cartridge will be seated in the recess 13^s of the extractor-hook, and as the action-bar continues its rearward movement, as heretofore explained, the hook extracts the shell from its chamber.

From the foregoing description it will be observed that my improved gun is of the hammerless class, and its operation, which will now be readily understood, will be briefly but connectedly set forth.

It will be assumed that the magazine is full of cartridges, in which event the follower 37 will occupy a position forward of the foremost cartridge, the spring 33 being compressed between the follower and the plug 39 in the forward extremity of the magazine-tube. The cartridges are inserted in the magazine-tube through the opening 5^a in the bottom of the receiver. It will also be assumed that the mechanism within the receiver is in the position shown in Fig. 1 of the drawings. In this event the forward extremity of the spring 32^d engages the rearmost cartridge and prevents it from entering the receiver by the force of the magazine-spring 33. Now the user of the gun wishing to extract the exploded shell from its chamber and eject the shell from the receiver cocks the firing-pin and places a cartridge in the chamber from which the shell has been extracted, pulls rearwardly on the handle 38, forcing the action-bar against the part 10^d of the crank, and moves the latter sufficiently to pull the rear extremity of the breech-block downwardly below the recoil-shoulder 5^c. The rear extremity of the breech-block and the forward face of the shoulder are curved to permit this movement. The inclined shoulders 5^s of the receiver support the forward extremity of the breech-block during this action. The rearward movement of the action-bar being in a line parallel with the axis of the gun-barrel and cartridge-chamber causes the breech-block to assume the inclined position, with its rearward extremity lowermost, since the part 10^d of the crank is prevented from moving upwardly in the arc of a circle,

and the spindle of the crank is drawn downwardly, bringing with it the breech-block in which the crank is journaled. During this action of the crank the part 10^s of the latter acts on the part 7ⁱ of the cocking-head and retracts the firing-pin. As the rearward pull of the handle 38 is continued the cocking of the firing-pin is completed by the continued turn of the crank, which is operated by the action-bar. The crank continues to revolve by virtue of the fact that the action-bar moves in a path non-parallel to the direction of movement of the breech-block, but parallel, or nearly so, to the axis of the chamber. The breech-block follows the ledges 5^s of the receiver, while the path of the action-bar is parallel to the axis of the gun-barrel, as heretofore explained. As soon as the firing-pin is cocked the sear enters its forward notch and holds it in the cocked position. Simultaneously with the cocking of the firing-pin the shell is withdrawn from its chamber by the extractor-hook and ejected through the instrumentality of the ejector mechanism composed of the parts 15 and 16, operating as heretofore explained. After the ejection of the shell the breech-block, by virtue of its groove 6^k, having the inclined faces 6^m, 6ⁿ, and 6^s, acts on the part 32^h of the carrier to throw the carrier-wing 32^c downwardly to the position shown in Fig. 3. This movement does not occur until after the shell has been ejected, since the breech-block does not act to move the carrier until its inclined face at the forward extremity of the groove 6^k is brought into contact with the part 32^h. When the carrier-wing has reached its downward limit of movement, the forward extremity of the spring 32^d is thrown out of the path of the cartridge and into a recess in the receiver-wall, thus allowing the rearmost cartridge to move rearwardly into the receiver and occupy a position above and lying on the carrier-wing. At this time the projection 32^s is brought into the path of the rim of the next cartridge and prevents its entrance into the receiver. As the handle 38 is moved forwardly the breech-block, by virtue of the connection of the crank 10 with the action-bar, is moved forwardly and returned to its position with the upper part of its rear extremity abutting against the recoil-shoulder 5^c. As the breech-block begins this forward movement it acts on the carrier, causing it to raise the cartridge upwardly in the receiver in front of the forward extremity of the forwardly-moving breech-block, which acts on the cartridge to force it into the cartridge-chamber, the carrier-wing retiring into its recess in the wall of the receiver in time to get out of the way of the breech-block, all of which has been explained heretofore more in detail. When the carrier-wing is in this position, the projection 32^s is concealed within a recess of the receiver-wall and the forward extremity of the spring 32^d is brought into the path of the rearmost cartridge of the magazine-tube and holds it against entering

the receiver. The forward movement of the breech-block brings the part 8^s of the sear directly beneath the lug 21^c of the trigger, and as the latter is pulled the sear is actuated to release the firing-pin, which, actuated by its spring, moves forwardly and explodes the cartridge.

To take down the gun or detach the barrel and magazine-tube from the receiver, the plug 39 is first pushed rearwardly to allow the magazine-tube to drop enough to release the handle from the shoulder 34^s of the barrel, after which the handle may be moved forwardly against the dog 40, which is actuated thereby to release the magazine-tube, which may then be detached from the receiver by a downward and forward movement, which also draws the action-bar out of the receiver, the part of the crank engaged by the action-bar moving upwardly in the recess *x*, as shown by dotted lines in Fig. 41, to allow the action-bar to pass out of the receiver. The barrel is removed by unscrewing it from the receiver extension by virtue of the construction heretofore explained.

The ring 35 is provided with depending projections 35^c, (see Fig. 39,) which embrace the magazine-tube on opposite sides and prevent the barrel from turning when the parts are assembled. This ring is provided with a recess in its lower side, which a segment of a collar *y* (see Fig. 39) on the magazine-tube is adapted to engage. The extremities of the segment-collar on the magazine-tube engage shoulders *z* at the extremities of the recess in the ring.

Attention is called to the fact that when the rear end of the breech-block is lowered, as described, its forward end is supported by virtue of the engagement of the forward extremities of its shoulders 6^s with the corresponding extremities of the inclined ledges 5^s of the receiver.

The handle 38 of the magazine-tube is cut away at the top to form a seat for the barrel. This handle is provided with an interior ring 47, adapted to engage the stop 34^s of the barrel from the front when the barrel and tube are detached from the receiver and connected together, as is customary when not in use. This construction holds the handle securely in place under such circumstances. This handle is provided at its forward extremity with an interior metal ring or band 46, which reinforces and stiffens the handle. Without this ring the compression resulting from the grasp of the hand of the user of the gun causes the handle to bind on the tube, thus preventing perfect freedom of movement. A spring 45 is formed at the top and forward edge of the ring 46 by cutting a slit therein and raising the metal to form a yielding part (see Fig. 42) adapted to engage the stop 34^s of the barrel as the handle is moved to the forward position. The yielding capacity of this spring is sufficient to break the force of the blow, forming, in effect, a buffer.

Having thus described my invention, what I claim is—

1. In a magazine-gun, the combination of a receiver, a breech-block longitudinally movable therein, the receiver being provided with a recoil-shoulder which engages the rear extremity of the breech-block when the mechanism is in the locked position, a crank mounted to turn in the breech-block, a firing-pin moved to the cocked position by the action of the crank, a sear mounted in the breech-block in operative relation with the firing-pin, and an action-bar arranged to move in a line parallel or nearly so with the axis of the gun-barrel, said bar engaging and actuating the crank, the engaging part of the latter being carried in a straight line with the action-bar, whereby the rear end of the breech-block is lowered to release it from the recoil-shoulder as the action-bar begins its rearward movement, and raised to lock the breech-block as the action-bar completes its forward movement.

2. The combination with a receiver, and a breech-block located therein, of a crank mounted to turn in the breech-block, a firing-pin moved to the cocked position by the action of the crank, a sear mounted in the breech-block in operative relation with the firing-pin, and an action-bar arranged to move in a line parallel or nearly so with the axis of the gun-barrel, the action-bar engaging a part of the crank outside of its axis and causing said part to move with it in a straight line, whereby the axis of the crank is lowered while the action-bar is moving in one direction and raised while the action-bar is moving in the opposite direction.

3. The combination of a receiver having a recoil-shoulder in its upper portion, a breech-block engaging said recoil-shoulder, a firing-pin mounted in the breech-block, an action-bar arranged to move in a line parallel or nearly so with the axis of the gun-barrel, a connection between the action-bar and the breech-block whereby the action-bar during the first part of its rearward movement cocks the firing-pin, lowers the extremities of the breech-block to disengage it from the recoil-shoulder and during the last part of its forward movement, raises the breech-block to the locked position in front of the recoil-shoulder, and a sear mounted in the breech-block and connected in operative relation with the firing-pin.

4. The combination of a receiver having a groove in its wall parallel or nearly so with the axis of the gun-barrel, an action-bar arranged to move in said groove, a breech-block longitudinally movable in the receiver in a line forming an angle with the axis of the gun-barrel, a firing-pin mounted in the breech-block, a device mounted to turn in the breech-block and having a radial extension projecting into the groove in the wall of the receiver, to engagement with the action-bar and carried in the line of the latter's travel, whereby

the said device is turned in the breech-block during the longitudinal travel of the latter, the said device being provided with a second radial extension which acts on the firing-pin to move the latter to the cocked position, and a sear mounted in the breech-block for holding the firing-pin in the cocked position.

5. The combination of a receiver having its axis inclined to that of the gun-barrel, a breech-block located in the receiver and whose axis is parallel with that of the gun-barrel when in the locked position, means for holding the breech-block in the last-named position, a firing-pin mounted in the breech-block, an action-bar arranged to move in a line parallel or nearly so with but below the axis of the gun-barrel, a crank mounted to turn in the breech-block and having two radial extensions one of which is engaged by the action-bar while the other engages the firing-pin, whereby during the first part of the rearward movement of the action-bar, the firing-pin is moved to the cocked position, the breech-block unlocked and tilted to cause its axis to coincide with that of the receiver-chamber, after which the breech-block is moved longitudinally in said chamber as the action-bar continues its rearward movement, and a sear mounted in the breech-block for holding the firing-pin in the cocked position.

6. The combination of a receiver the axis of whose chamber is inclined to that of the gun-barrel, and a breech-block longitudinally movable therein, a spring-actuated firing-pin, an action-bar movable in a line parallel or nearly so with the axis of the gun-barrel, a crank mounted to turn in the breech-block and having a radial extension, said extension being engaged by the action-bar and movable in the line of the latter's travel, the said crank being turned in the breech-block by the action-bar during the longitudinal travel of the breech-block which is also operated by the action-bar, the said crank having a part which engages the firing-pin and moves the latter to the cocked position as the crank turns in the breech-block and a sear mounted in the breech-block for holding the firing-pin in the cocked position.

7. The combination of a receiver, a breech-block longitudinally movable therein, a spring-actuated firing-pin, an action-bar movable in a line forming an angle with the axis of the receiver-chamber, a crank mounted to turn in the breech-block and having a radial extension, said extension being engaged by the action-bar and moved in the line of its travel, the said crank being turned in the breech-block by the action-bar during the longitudinal travel of the breech-block which is also actuated by the action-bar, the said crank having a part which by virtue of its turning action engages the firing-pin and moves it to the cocked position, and a sear mounted in the breech-block for holding the firing-pin in the cocked position.

8. The combination of a receiver, an ac-

tion-bar movable in a line forming an angle with the axis of the receiver-chamber, a spring-actuated firing-pin, a crank mounted in the breech-block and having a radial extension, said extension being engaged by the action-bar and moving in the line of its travel, said crank having another part located outside of its axis, said last-named part engaging the firing-pin and moving it to the cocked position during the longitudinal travel of the breech-block which is also actuated by the action-bar, and a sear mounted in the breech-block for holding the firing-pin in the cocked position.

9. The combination of a receiver, the axis of whose chamber is inclined to the axis of the gun-barrel, a breech-block longitudinally movable in the receiver, an action-bar movable in a line at an angle to the axis of the receiver, and in the direction of the travel of the breech-block, a spring-actuated firing-pin, a crank mounted in the breech-block and having a radial extension arranged to act on the firing-pin, another radial extension engaged by the action-bar and arranged to be moved by the latter in its line of travel, the firing-pin being moved to the cocked position by the action-bar as the latter is moved rearwardly, a breech-block moved in the receiver-chamber in the direction of the latter's travel, and a sear mounted in the breech-block for holding the firing-pin in the cocked position.

10. The combination of a receiver, a breech-block longitudinally movable therein, a spring-actuated firing-pin carried by the breech-block, the wall of the receiver being provided with a longitudinal recess or channel, an action-bar moving in said recess or channel, a crank mounted in the breech-block and provided with a radial extension projecting into said channel to engagement with the action-bar, the said crank having another radial extension engaging the firing-pin and moving it to the cocked position, and a sear pivotally mounted in the breech-block and arranged to retain the firing-pin in the cocked position.

11. The combination with a trigger and a trigger-guard of a safety-slide located on the forward part of the trigger-guard and projecting in front of the forward part of said guard and rearwardly into the trigger-guard, whereby it is necessary to take the finger from the trigger-guard in order to adjust the slide to lock the trigger.

12. The combination with a receiver, of a breech-block, a spring-actuated firing-pin, a crank mounted in the breech-block and provided with two radial extensions, an action-bar, the wall of the receiver being provided with a groove into which the action-bar travels, one of the radial extensions of the crank projecting into said groove to engagement with the action-bar, while the other radial extension engages the firing-pin and moves it rearwardly in the breech-block as the ac-

tion-bar is given a corresponding movement, and a sear pivotally mounted in the breech-block for locking the firing-pin in the cocked position.

5 13. The combination with a receiver of a breech-block located therein, a spring-actuated firing-pin, a crank pivotally mounted on the breech-block and having two radial extensions, one of which engages the firing-pin
10 to move it rearwardly in the breech-block as the crank is actuated, the wall of the receiver being provided with a longitudinal recess or channel into which the other radial extension of the crank projects, and an action-bar mov-
15 ing in said channel to engagement with the last-named radial extension of the crank, whereby the latter is actuated for the purpose set forth.

14. The combination with a receiver and a
20 breech-block, of an extractor device pivotally connected with the forward part of the breech-block and engaging the shell in the cartridge-chamber, an action-bar longitudinally mov-
25 able in the groove formed in the wall of the receiver, the action-bar being provided with a groove, a lug on the extractor entering said groove, the action-bar being provided with a recess to allow the lug of the extractor to move downward and forward when the ac-
30 tion-bar has reached a predetermined position, and a spring located in the rear of the extractor device which extractor has a limited movement in a direction lengthwise of the breech-block.

35 15. The combination with a receiver of a longitudinally-movable breech-block, an extractor-hook pivotally mounted in an elongated opening of the breech-block, a spring engaging the pivot from the rear, the extractor
40 having a forwardly-projecting arm movable in a triangular opening formed in the breech-block, the forward extremity of the arm having a part projecting toward the center of the receiver in which is formed a recess adapted
45 to receive the rim of a cartridge-shell, and a lug extending in the opposite direction, an action-bar movable in a groove formed in the wall of the receiver, the said bar being provided with a groove into which the lug of the
50 extractor projects, the wall of the groove below the lug having a recess to allow the extractor to move downwardly to bring its recess below the rim of the shell, the action-bar having a limited movement independently of
55 the extractor, whereby the recessed part of the extractor is forced upwardly to operative engagement with the rim of the shell.

60 16. The combination with a barrel, and a magazine located below the barrel, of a receiver having a bottom opening, a breech-block longitudinally movable in the receiver, an extractor device mounted on the forward extremity of the breech-block, and adapted to extract the shell from the cartridge-chamber
65 as the breech-block is moved rearwardly, an ejector device consisting of a plurality of parts mounted in the receiver, and actuated by the

breech-block, one part being slidably mounted in a groove formed in the wall of the receiver, said part being arranged to act on the rear ex- 70
tremity of the shell and eject the latter downwardly through the bottom opening in the receiver and an arm pivoted in the receiver and acting on the said slidable part to cause the latter to perform the aforesaid function, sub- 75
stantially as described.

17. The combination with a receiver of a breech-block movable longitudinally therein, and a slide mounted in the upper part of the receiver and having a downward projection, 80
an arm pivoted in the receiver and engaging the slide, a spring normally holding the arm and slide in the rearward position, the arm having a projection engaged by the breech-block during its rearward movement, whereby 85
the arm is actuated to give the slide a forward thrust to eject the shell.

18. The combination of a receiver and a breech-block longitudinally movable therein, of a firing-pin carried by the breech-block, a 90
spring-held sear pivotally mounted in the breech-block, a crank pivotally mounted in the breech-block and provided with two radial extensions, an action-bar movable in a longitudinal channel formed in the wall of the re- 95
ceiver, one of the radial extensions of the crank projecting into said channel to engagement with the action-bar, the other radial extension engaging the firing-pin, whereby it is held in the cocked position, a trigger engag- 100
ing the sear and having a forwardly-extending lower arm occupying a recess in the lower part of the receiver, and a safety-slide mounted in the trigger-guard and engaging the said trigger-arm to lock the trigger against move- 105
ment when the slide is in one position, while when the slide is in the other position the trigger is allowed its normal movement.

19. The combination with a receiver, and a breech-block located therein, of a spring-held 110
firing-pin mounted in the breech-block, a crank pivotally mounted in the breech-block and having two radial extensions, an action-bar moving in a longitudinal channel formed in the wall of the receiver, one of the radial 115
extensions of the crank projecting into said channel to engagement with the action-bar, while the other radial extension engages the firing-pin to cock the latter as the action-bar is forced rearwardly, a sear for holding the 120
firing-pin in its cocked position, a trigger engaging the sear to release the firing-pin, said trigger being suitably mounted in the receiver and having a forwardly-extending lower arm located in the recess of the re- 125
ceiver, and having a downward projection at its forward extremity, a safety-slide movably mounted in the guard and provided with a recess to receive the projection in the trigger-arm when the trigger is pulled, but capa- 130
ble of adjustment to lock the trigger by engaging its depending lug, and a spring for retaining the slide in the adjusted position.

20. The combination with a receiver, of a

breech-block mounted therein and longitudinally movable, a firing-pin mounted in the breech-block, a crank mounted in the breech-block and having two radial extensions, one of which engages the firing-pin, and moves it to the cocked position, an action-bar moving in a longitudinal recess or channel formed in the wall of the receiver, one of the radial extensions of the crank projecting into said channel to engagement with the action-bar whereby as the latter is thrust rearwardly the crank is operated, substantially as described.

21. The combination with a receiver, a breech-block, a firing-pin movably mounted in the latter, and an action-bar, of a crank pivoted in the breech-block and connected with the action-bar whereby it is normally operated by the movement of the bar to actuate the breech-block and cock the firing-pin, and a spring-held lever fulcrumed on the breech-block and engaging the crank to lock the latter against revolving rearwardly, said lever lying in the path of the firing-pin during its forward movement, whereby the crank is released from the lever as soon as the gun is fired.

22. The combination with a receiver, a breech-block, a firing-pin and an action-bar, of a crank mounted in the breech-block and actuated by the action-bar to cock the firing-pin, and a spring-held lever fulcrumed on the breech-block and engaging the crank to lock it and the action-bar against rearward movement when the firing-pin is cocked, the said lever having a spring in the path of the firing-pin, which spring is placed under tension by the forward movement of the firing-pin, whereby as the gun is fired the lever is actuated to release the crank, by the combined action of the spring and the recoil of the gun.

23. The combination with a receiver, of a breech-block longitudinally movable therein, a carrier pivoted in the receiver and whose axis is parallel or nearly so with the axis of the gun-barrel, the carrier being actuated by the breech-block during its longitudinal movement, said carrier having a wing normally occupying a recess in the wall of the receiver, the carrier having a part projecting into and operated by the walls of a groove formed in the breech-block.

24. In a magazine-gun, the combination with a magazine, a cartridge-chamber and a receiver, of a breech-block moving in the receiver, and a carrier device having a longitudinal rotating spindle journaled in the wall of the receiver, said device being actuated by the breech-block to raise the cartridge into line with the cartridge-chamber.

25. The combination with a receiver and a breech-block arranged to reciprocate therein, of a carrier device pivotally mounted in the wall of the receiver and normally out of the path of the breech-block, the carrier having a longitudinal rotating spindle and a radial

wing, and a suitable connection between the spindle and the breech-block whereby the said wing is revolved downwardly to receive the cartridge during the rearward movement of the breech-block, and upwardly during its forward movement, whereby the cartridge is raised to a position to enter its chamber.

26. In a magazine-gun, the combination with a receiver, a magazine-tube, a cartridge-chamber, a breech-block reciprocating in the receiver, and an action-bar for operating the breech-block, of a carrier device provided with a longitudinal spindle and a carrier-wing, the spindle being journaled in the wall of the receiver and provided with a spring at its forward extremity normally engaging the rearmost cartridge in the magazine-tube and holding it in place, the rear end of the carrier-spindle being provided with a part acted on by the breech-block during its rearward movement, whereby the spindle is actuated and the wing of the carrier thrown down to receive a cartridge from the magazine, the spring having been turned to release the cartridge by the movement of the spindle, while the breech-block during its forward movement acts on the part at the rear extremity of the carrier-spindle to reverse the action of the latter and raise the cartridge to position in the rear of the cartridge-chamber, and to a position in front of the forwardly-moving breech-block.

27. The combination with a receiver, and a breech-block, of a carrier having a spindle journaled in the wall of the receiver and a wing projecting from the spindle, the forward portion of the spindle having a device normally engaging the rearmost cartridge of the magazine-tube, the rear portion of the spindle being provided with a part acted on by the breech-block to operate the carrier.

28. The combination with a receiver, and a breech-block, of a carrier device having a longitudinal spindle provided with two projections occupying different planes, one being located forward of the other, one projection normally occupying a position immediately in the rear of the rearmost cartridge in the magazine, while the other projection occupies a position forward of the rim of said cartridge, whereby when the spindle is turned to throw the carrier to the operative position, the cartridge engaged by the one projection is released, while the other projection is brought into the path of the next cartridge in the rear.

29. The combination with a receiver and a breech-block provided with a groove in one side thereof, of a carrier having a longitudinal spindle journaled in the wall of the receiver adjacent the groove of the breech-block and having a spiral projection entering the groove of the breech-block, whereby the spindle is turned in one direction during the rearward movement of the breech-block and in the opposite direction during its forward movement.

30. In a magazine-gun, the combination

with a receiver having an opening in its bottom wall, a cartridge-chamber, and a magazine communicating with the receiver-chamber, of a carrier device having a longitudinal spindle journaled in the receiver-wall and provided with a wing adapted when operated to be revolved into the receiver-chamber across its bottom opening and in the rear of the magazine, to support a cartridge issuing from the latter, and to be revolved upwardly whereby the cartridge is brought into line with the cartridge-chamber, and a breech-block located in the receiver-chamber and operating the carrier to produce the aforesaid results.

31. In a magazine-gun, the combination with a receiver and a barrel connected therewith, of a magazine-tube whose rear extremity is provided with two lugs, the barrel and receiver below the barrel having shoulders, the barrel-shoulder facing forwardly and the receiver-shoulder facing rearwardly, the said shoulders being engaged by the lugs of the magazine-tube, for connecting the rear extremity of the tube with the barrel.

32. The combination with a barrel and magazine-tube, of a spring-held device located in the forward end of the tube and a depending part connected with the barrel and cooperating with the said device to hold the tube in operative relation with the barrel, and a spring-held dog mounted on the barrel and supporting the tube after the spring-held device has been detached from the depending part of the barrel, the tube being allowed to move downwardly a short distance before it is stopped by the dog.

33. The combination with a barrel, a magazine-tube, a spring therein, and a handle slidable thereon, of a spring-held device inserted in the forward end of the tube, a projection on the barrel cooperating with the said device to hold the parts in operative relation, a dog mounted on the barrel and supporting it after the plug and depending part are separated, a shoulder on the handle, and a stop on the barrel which the shoulder normally engages to limit the forward movement of the slide, substantially as described.

34. The combination with a receiver, a breech-block, a firing-pin movably mounted in the latter, and an action-bar, of a crank pivoted in the breech-block and connected with the action-bar, whereby it is operated by the movement of the bar to actuate the breech-block and cock the firing-pin, and a spring-held lever fulcrumed on the breech-block and engaging the crank and locking the latter against revolving rearwardly, the adjacent wall of the receiver being provided with a recess or groove into which the lever projects when in the locking position, thus forming an additional safeguard against the downward movement of the breech-block during the recoil of the gun.

35. The combination with a trigger and trigger-guard, of a safety-slide mounted on

the forward extremity of the trigger-guard, projecting forwardly therefrom and adapted to lock the trigger against movement when the slide is in the rearward position, so that it is necessary to take the finger out of the trigger-guard in order to move the slide to the safe position.

36. The combination with a receiver, a barrel and a magazine-tube, of a ring mounted on the rear extremity of the barrel and having separated depending projections embracing the magazine-tube on opposite sides when the parts are assembled.

37. The combination with a barrel, a magazine-tube and a handle slidable on the latter, of a shoulder on the handle, said shoulder being exposed at the top of the handle, and a stop formed on the lower side of the barrel, whereby when the shoulder on the handle is located forward of the stop on the barrel when the barrel and the magazine-tube are connected after being detached from the receiver, the handle is locked against rearward movement.

38. The combination with a receiver, a barrel and a magazine-tube, of a ring mounted on the rear extremity of the barrel and having separated depending projections adapted to embrace the magazine-tube on opposite sides when the parts are assembled, the magazine-tube being provided on its upper side with the segment of a collar, and a ring having a recess in its lower side which the segment-collar of the magazine-tube occupies, the extremities of the segment-collar, engaging shoulders formed at the extremities of the recess in the ring.

39. The combination with a barrel having a stop or shoulder on its lower side, a magazine-tube and a handle slidable thereon, of a ring applied to the forward extremity of the handle and having a buffer-spring formed on its forward edge, said spring being adapted to engage the stop of the barrel as the handle is moved forwardly for the purpose set forth.

40. The combination with a receiver, of a breech-block located therein and longitudinally movable, a groove being formed in its upper face and having an inclined face at its forward extremity, and ejector mechanism comprising a slide mounted in the receiver, and a spring-held pivoted arm engaging said slide and normally holding it in the rearward position, the said arm having a downward projection adapted to engage the groove of the breech-block and actuate the pivoted arm to drive the slide forwardly against the shell, when the inclined front face of the groove in the breech-block engages the said projection.

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

JOHN D. PEDERSON.

Witnesses:

A. J. O'BRIEN,
DORA C. SHICK.