P. MAUSER.

FIREARM.

APPLICATION FILED JULY 9, 1907.

924,169.

Patented June 8, 1909.

13 SHEETS—SHEET 1.

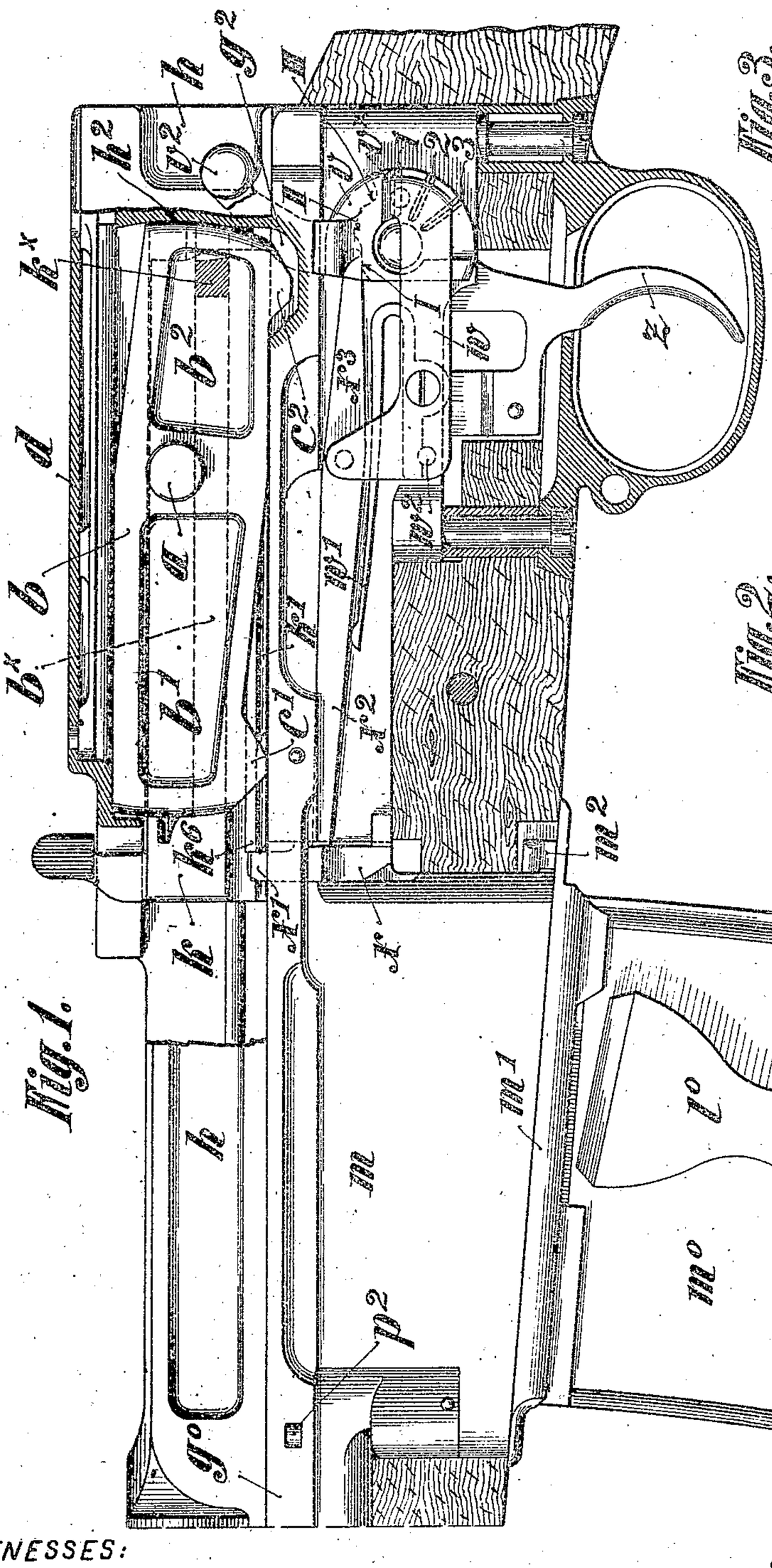


Fig. 1.

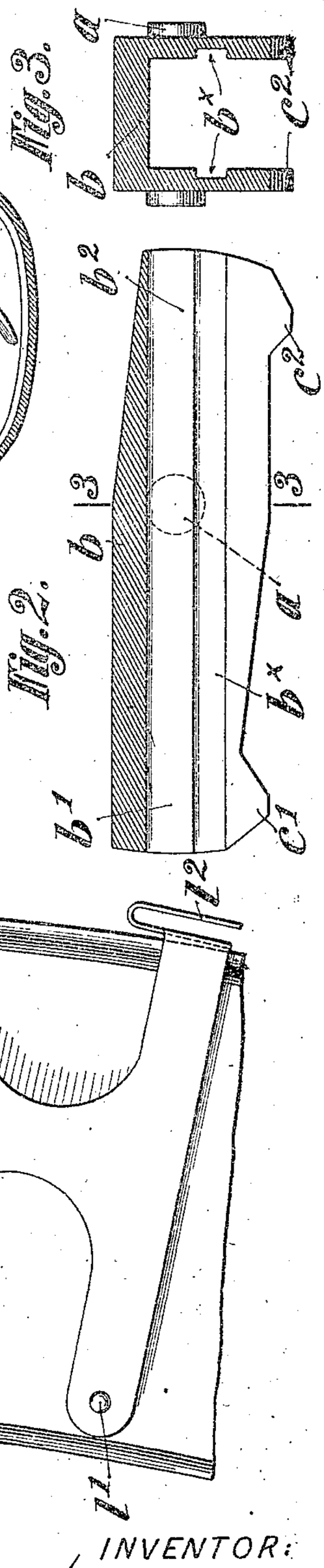


Fig. 2.

Fig. 3.

WITNESSES:

Fred Whitz

René Bruine

INVENTOR:

Paul Mauser,

By his Attorneys

Lucien & Amer Adams

P. MAUSER.

FIREARM.

APPLICATION FILED JULY 9, 1907.

924,169.

Patented June 8, 1909.

13 SHEETS—SHEET 2.

Fig. 4.

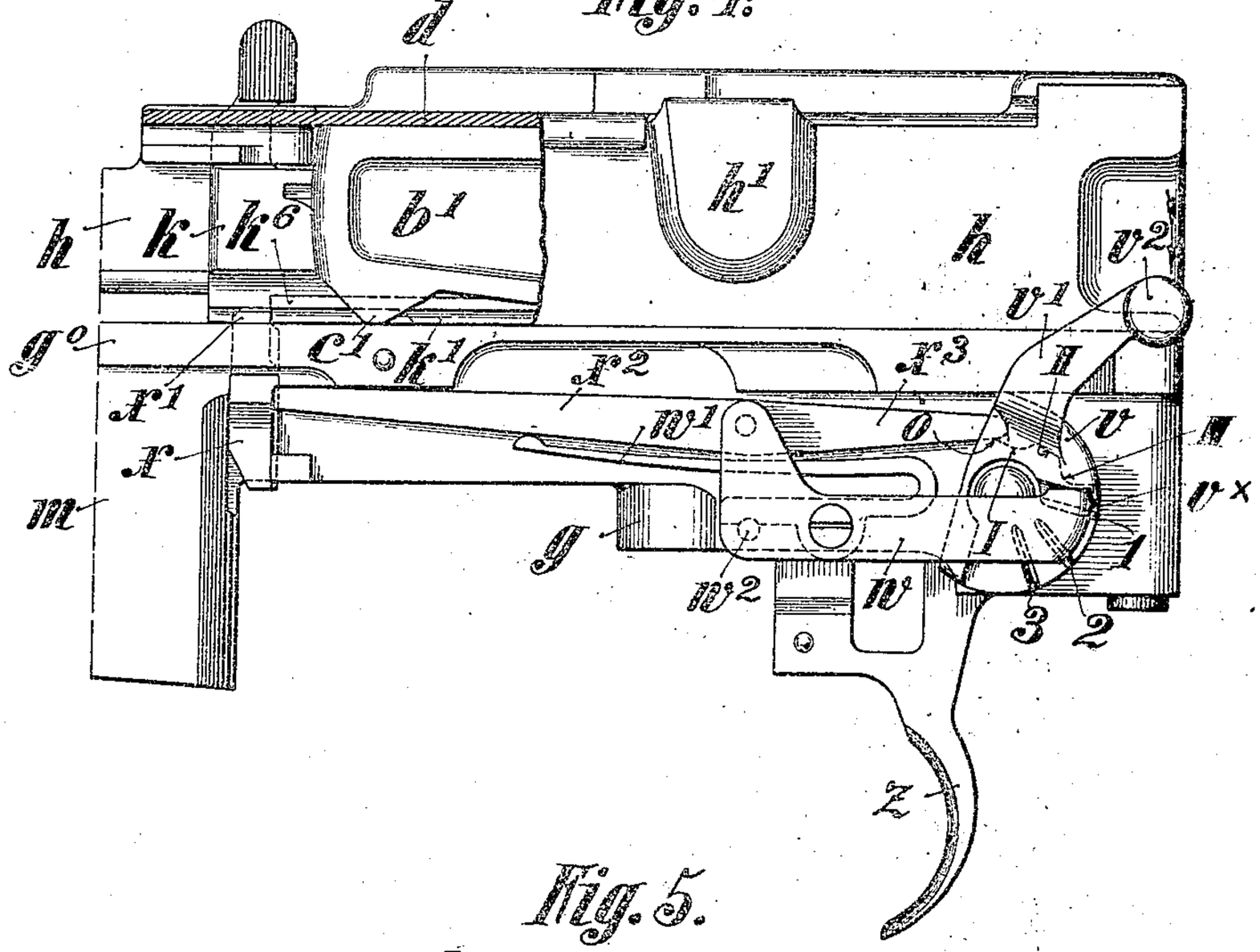
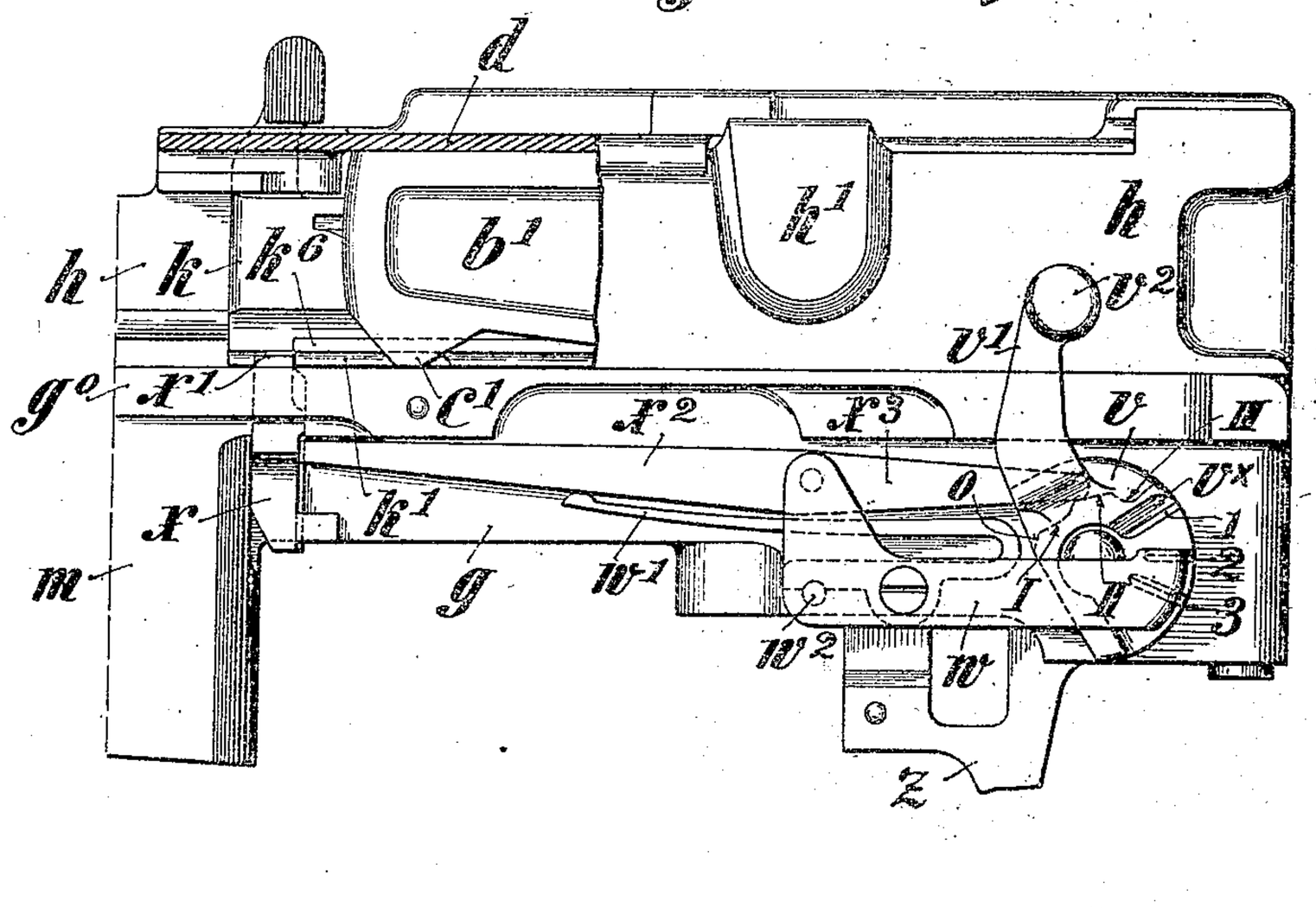


Fig. 5.



WITNESSES:

Fred White

René Bruine

INVENTOR:

Paul Mauser,

By his Attorneys

Arthur O. Fraser & Co.

P. MAUSER.

FIREARM.

APPLICATION FILED JULY 9, 1907.

924,169.

Patented June 8, 1909.

13 SHEETS—SHEET 3.

Fig. 6.

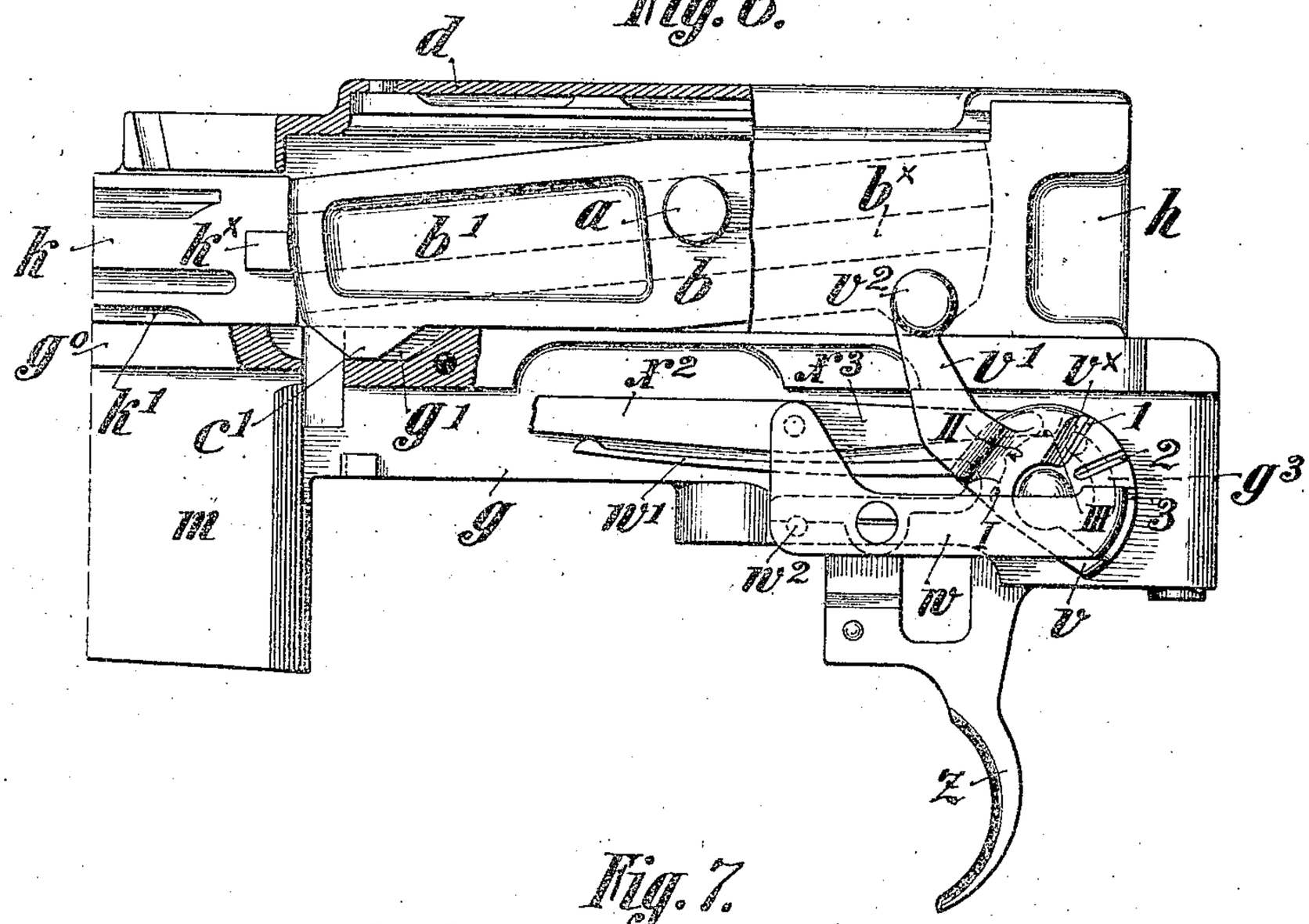
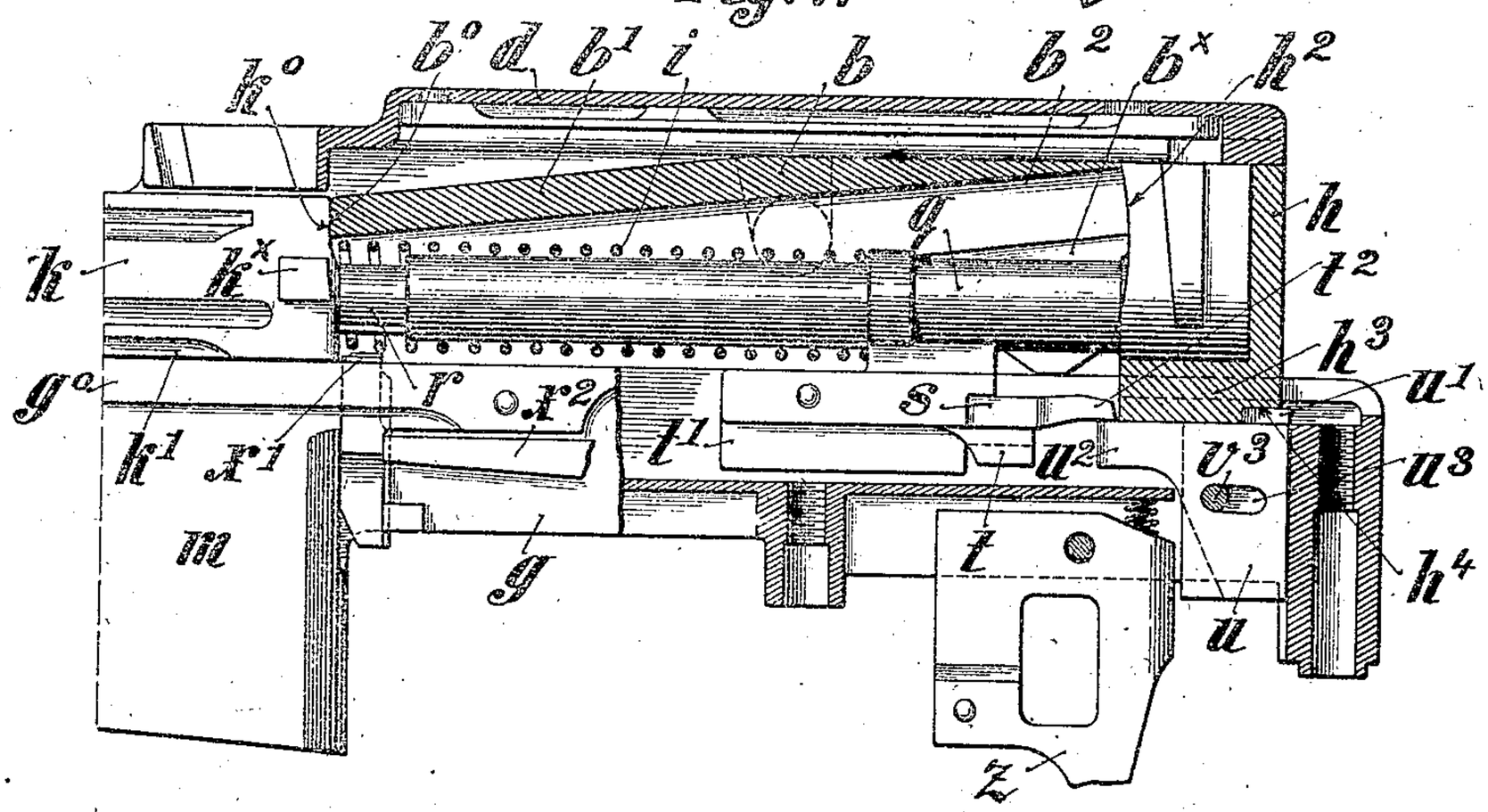


Fig. 7.



WITNESSES:

Fred White,

René Bruine

INVENTOR:

Paul Mauser,

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Arthur O. Fraser & Sons

P. MAUSER.

FIREARM.

APPLICATION FILED JULY 9, 1907.

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13 SHEETS—SHEET 4.

Fig. 8.

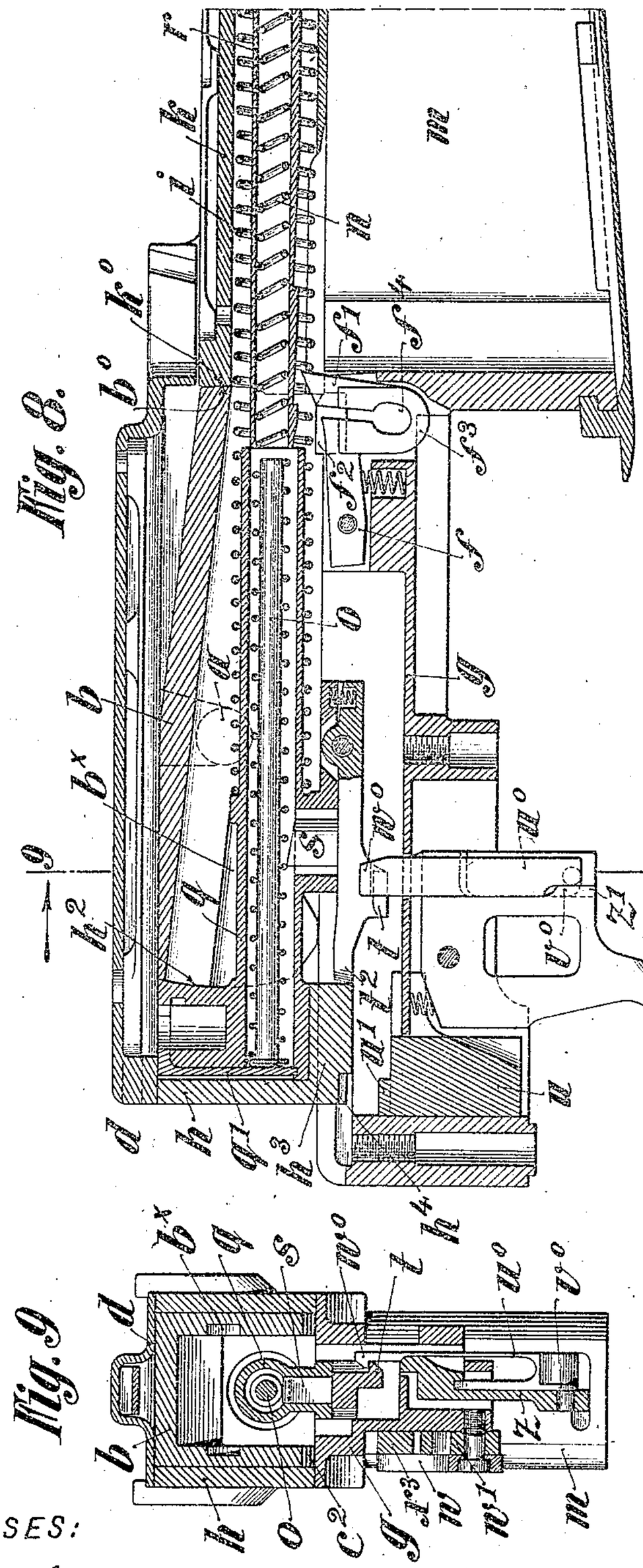

Fig. 9.

WITNESSES:

Fred Whitty

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INVENTOR:

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P. MAUSER.

FIREARM.

APPLICATION FILED JULY 9, 1907.

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Patented June 8, 1909.

13 SHEETS—SHEET 5.

Fig. 10.

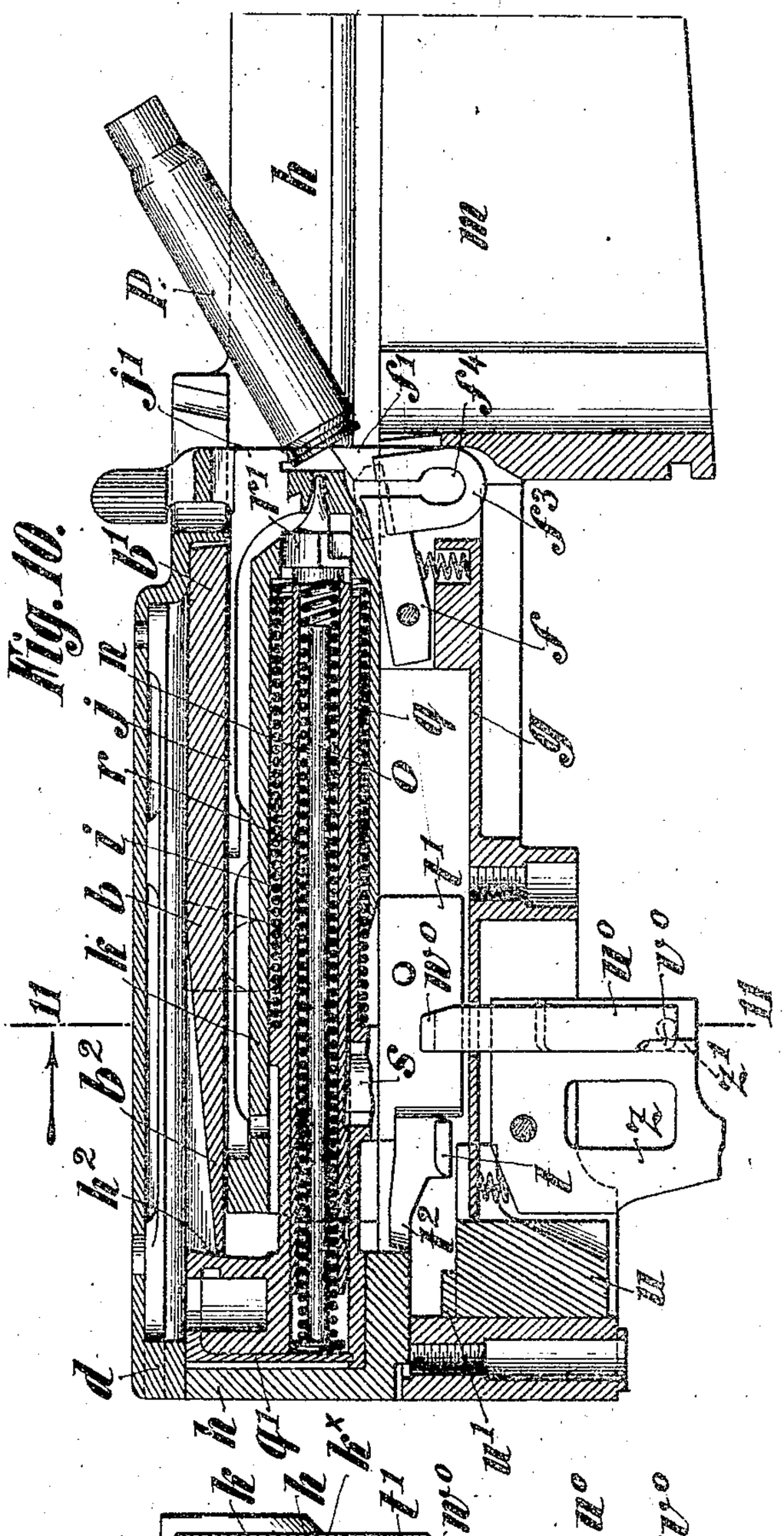

Fig. 11.

WITNESSES.

Isaac White

René Bruine

INVENTOR.

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P. MAUSER.

FIREARM.

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Patented June 8, 1909.

13 SHEETS—SHEET 6.

Fig. 12.

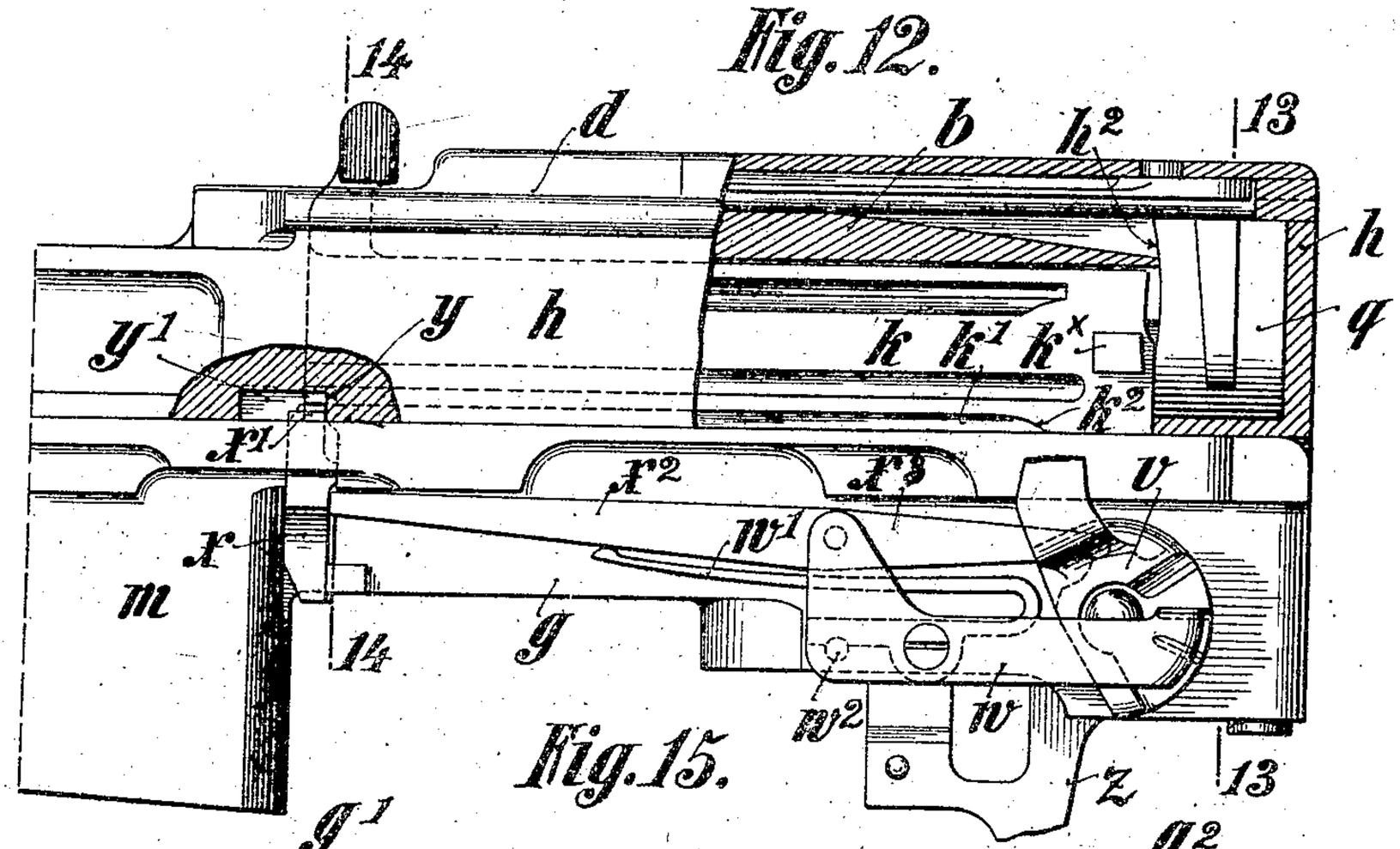


Fig. 15.

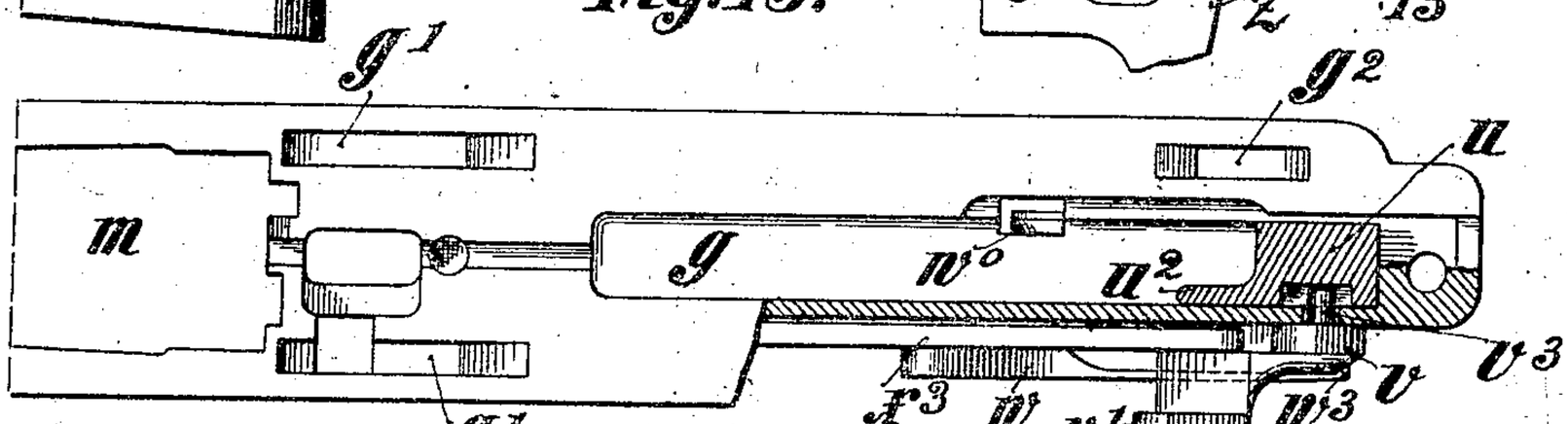
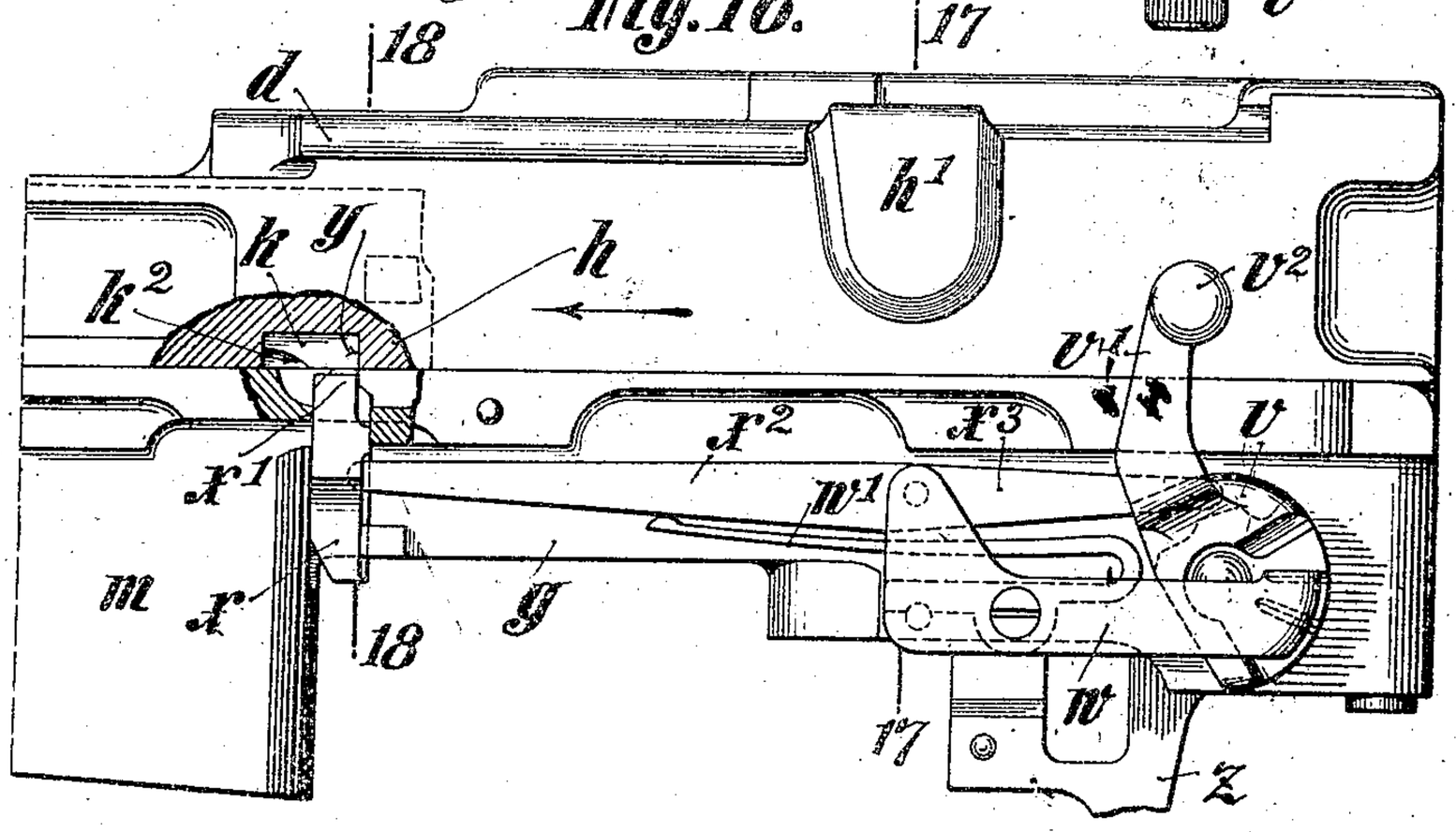


Fig. 16.



WITNESSES:

Fred Whitehead

Rene' Milne

INVENTOR:

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Munn & Boyer & Mena

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FIREARM.

APPLICATION FILED JULY 9, 1907.

924,169. Patented June 8, 1909.

13 SHEETS—SHEET 7.

Fig. 14.

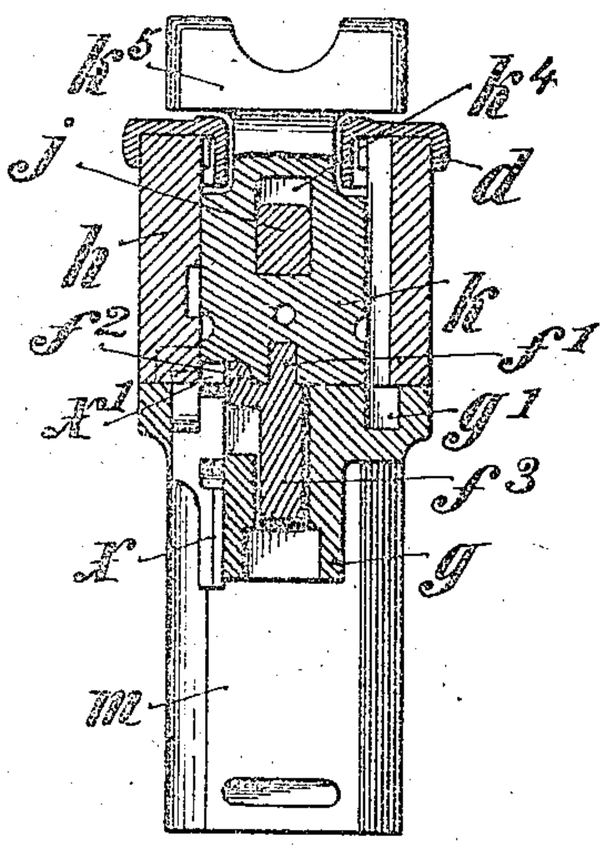


Fig. 13.

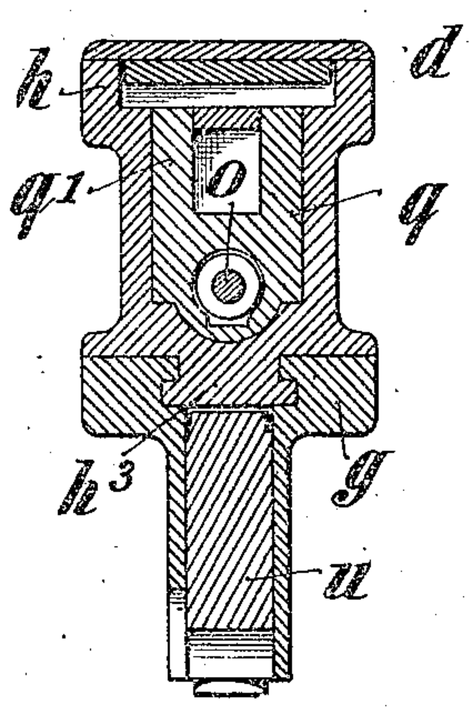


Fig. 18.

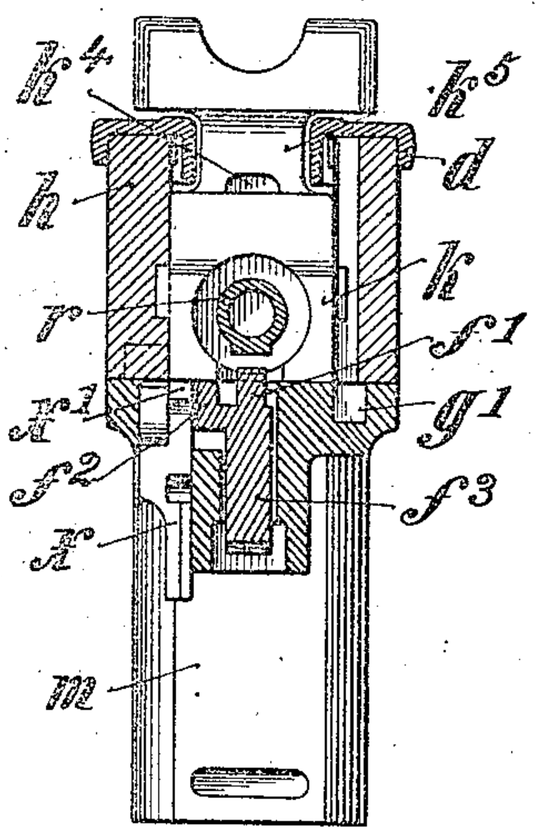
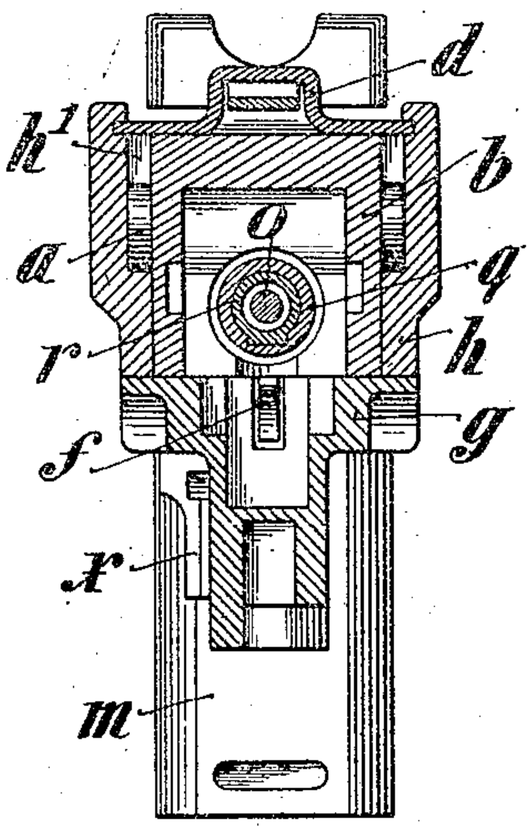


Fig. 17.



WITNESSES:

Fred White

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INVENTOR:

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P. MAUSER.

FIREARM.

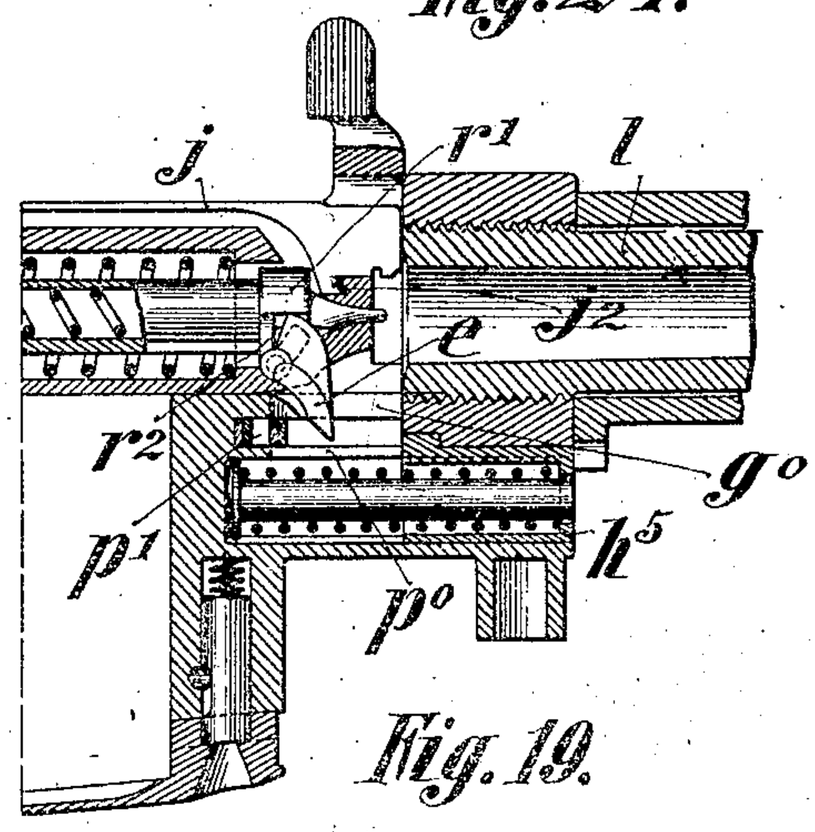
APPLICATION FILED JULY 9, 1907.

924,169.

Patented June 8, 1909.

13 SHEETS—SHEET 8.

Fig. 24.



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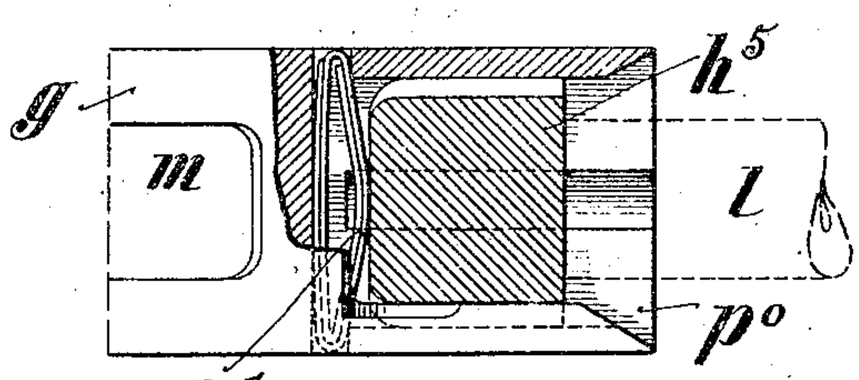
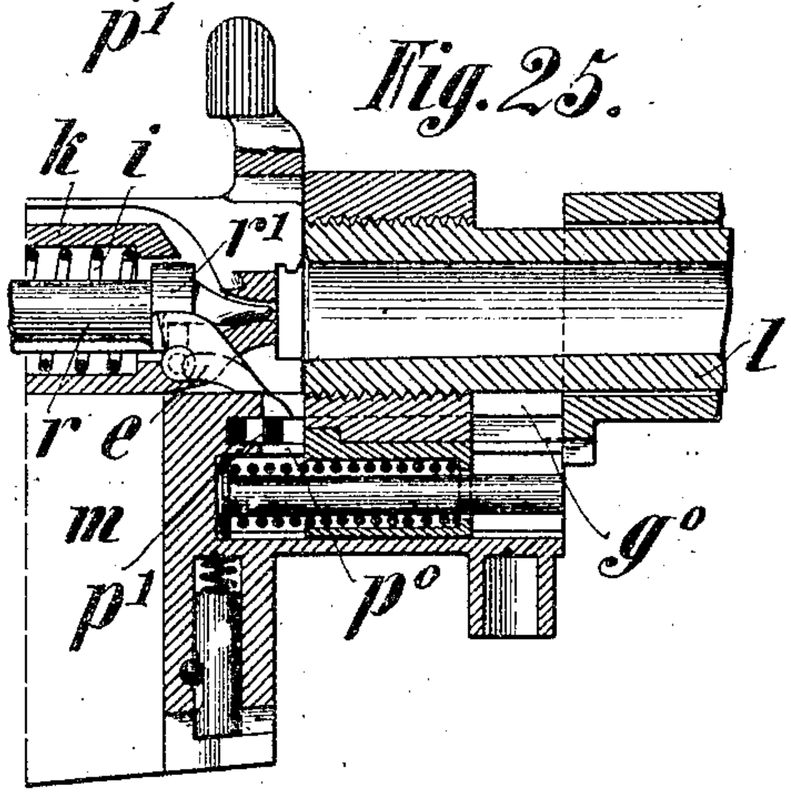


Fig. 25.



WITNESSES:

Fred Wolf

Rene Bruine

INVENTOR:

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Richard Bacon & Howard

P. MAUSER.

FIREARM.

APPLICATION FILED JULY 9, 1907.

924,169.

Patented June 8, 1909.

13 SHEETS—SHEET 9.

Fig. 20.

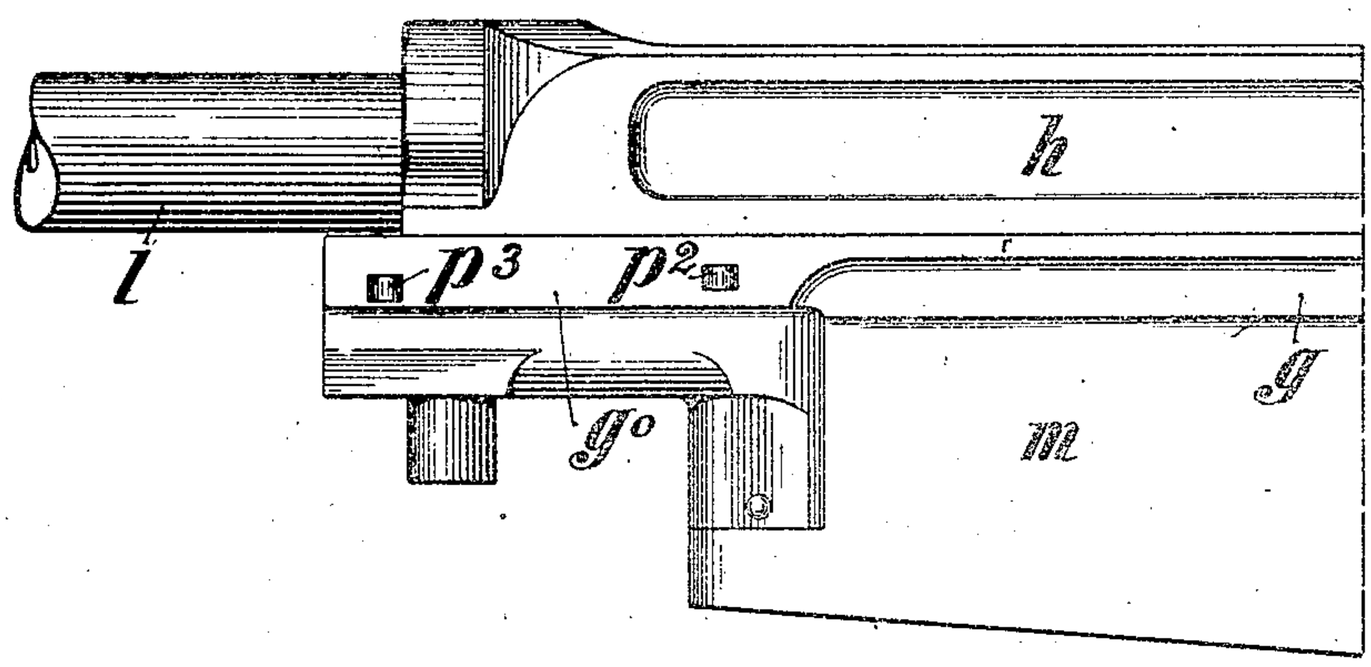
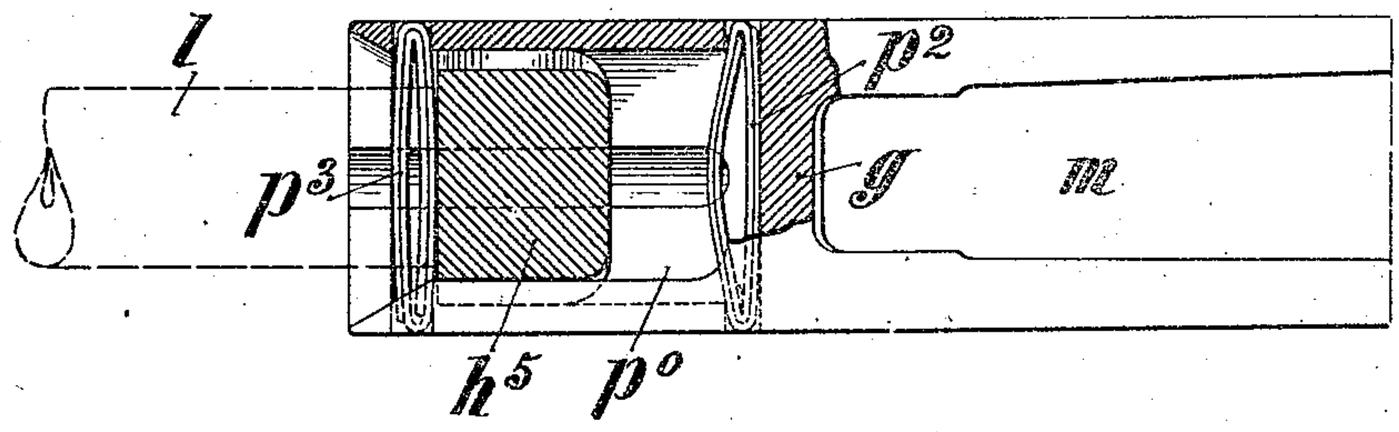


Fig. 22.



WITNESSES:

Fred Whitz

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INVENTOR:

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Arthur O. Fraser & Sons

P. MAUSER.

FIREARM.

APPLICATION FILED JULY 9, 1907.

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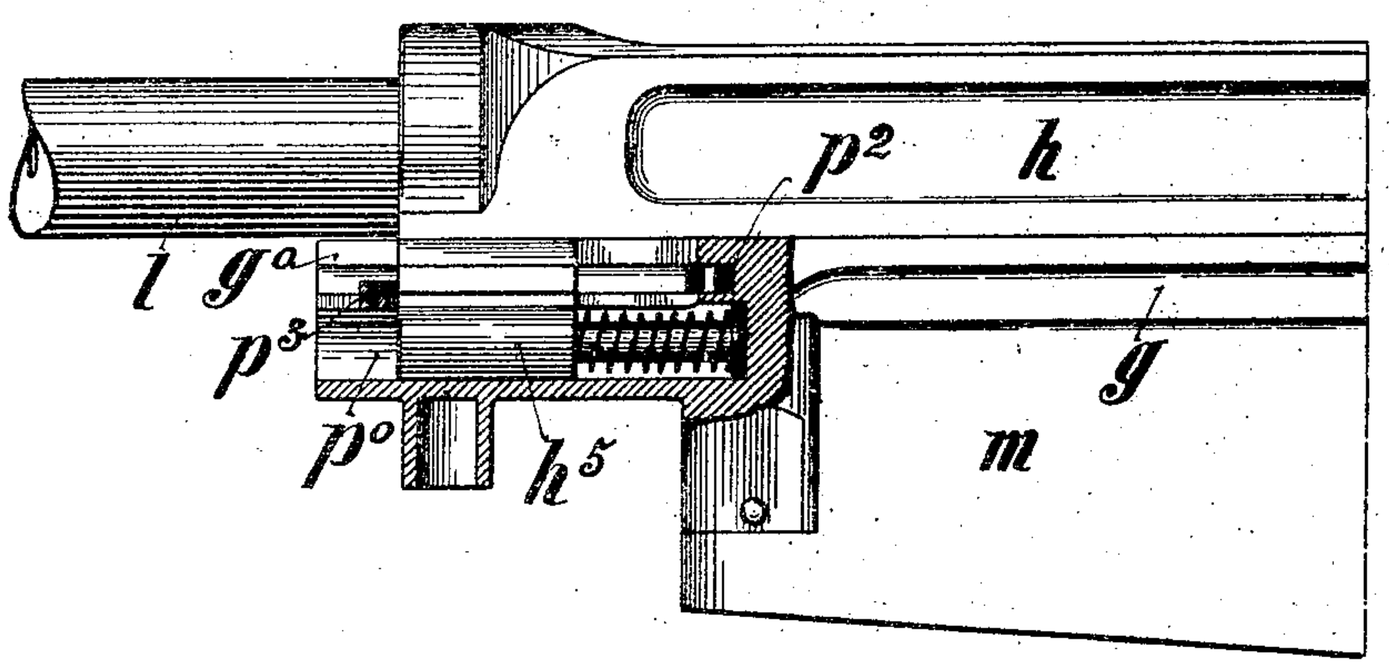
Patented June 8, 1909.

13 SHEETS—SHEET 10.

Fig. 21.



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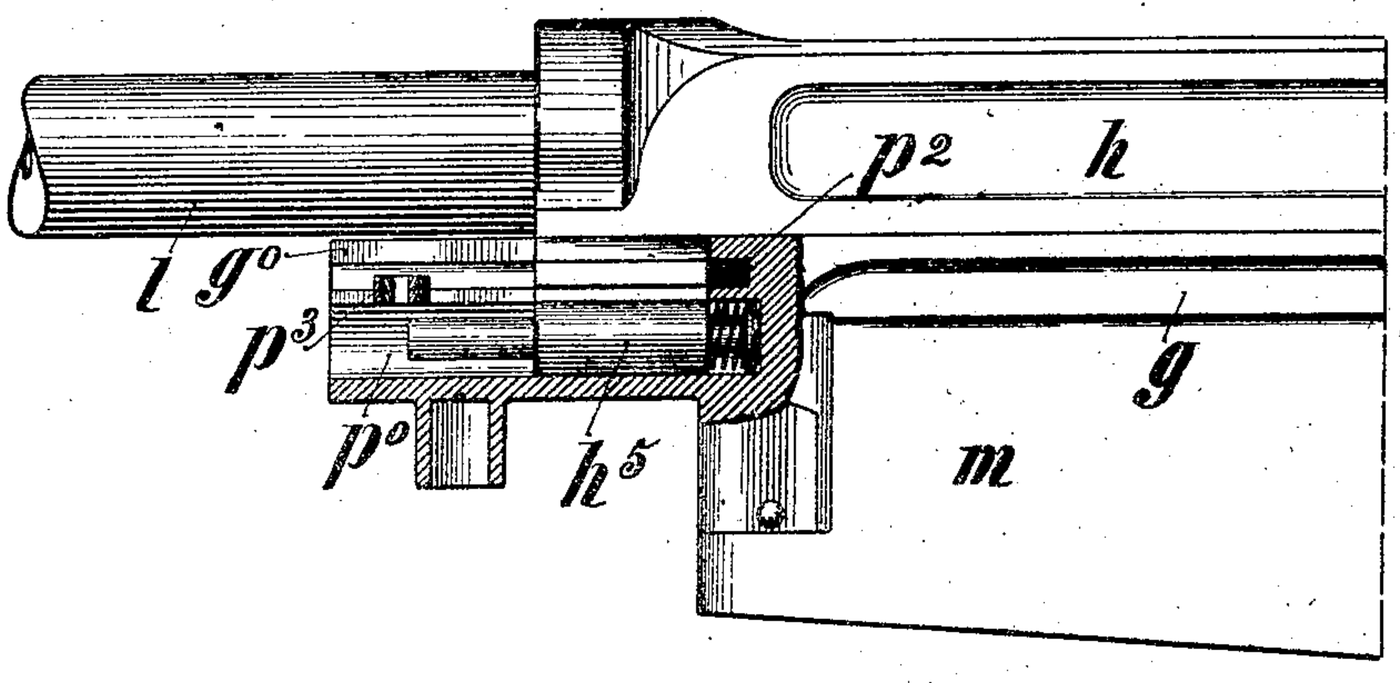

WITNESSES:

Fred White

René Bruine

INVENTOR:

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924,169.

P. MAUSER.

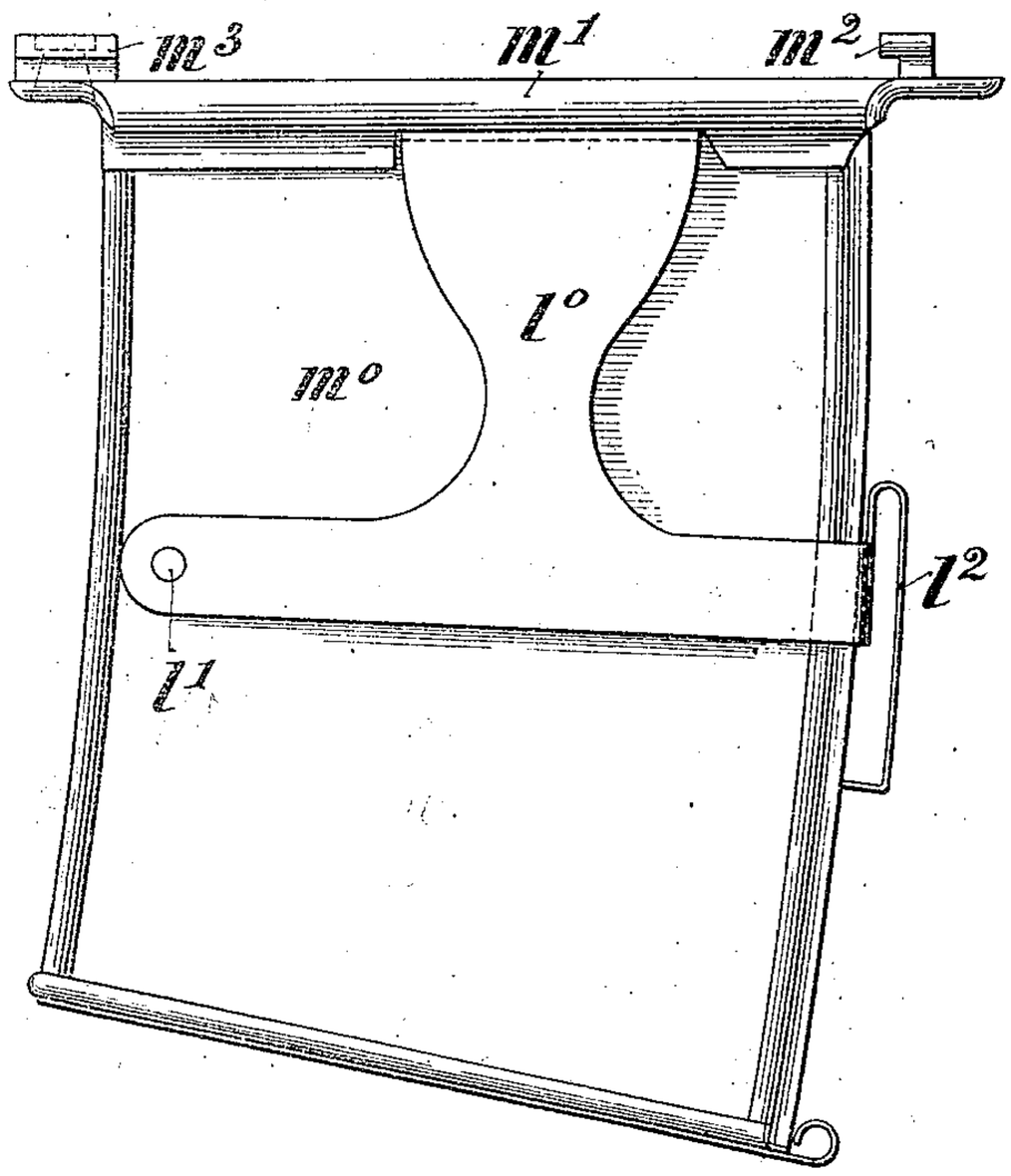
FIREARM.

APPLICATION FILED JULY 9, 1907.

Patented June 8, 1909.

13 SHEETS—SHEET 11.

Fig. 26.



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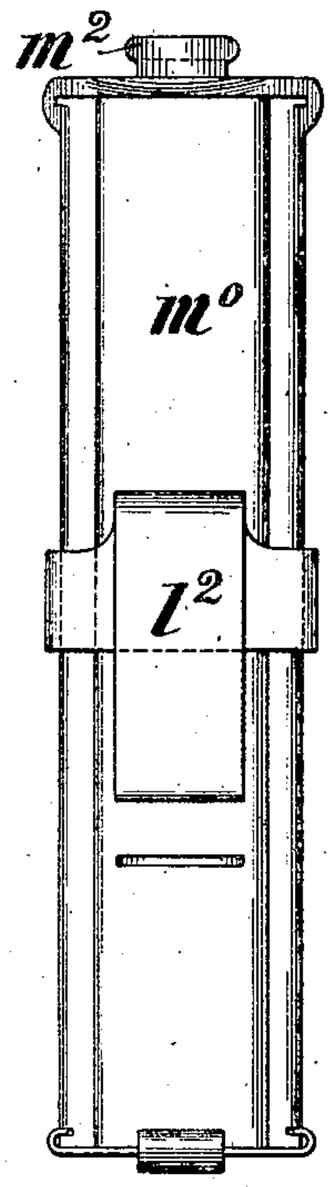
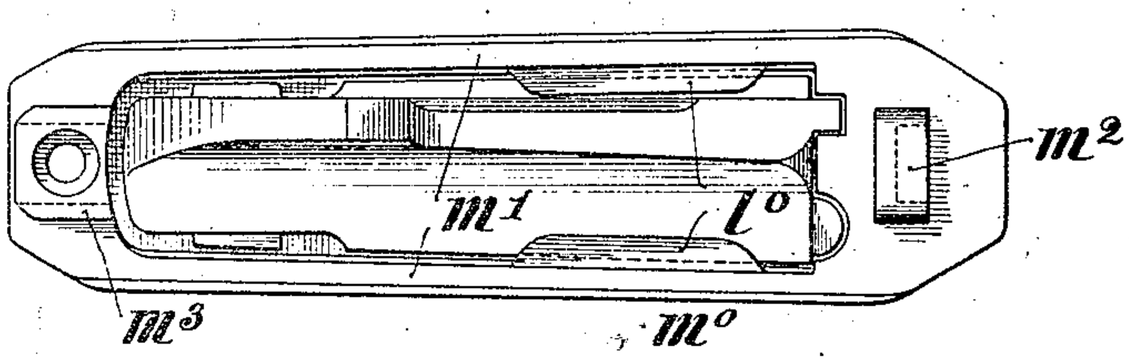


Fig. 27.



WITNESSES:

Fred Whitey

René Bruine

INVENTOR:

Paul Mauser,

By his Attorneys

Arthur & Fraser Howson

924,169.

P. MAUSER.

FIREARM.

APPLICATION FILED JULY 9, 1907.

Patented June 8, 1909.

13 SHEETS - SHEET 12

Fig. 29.

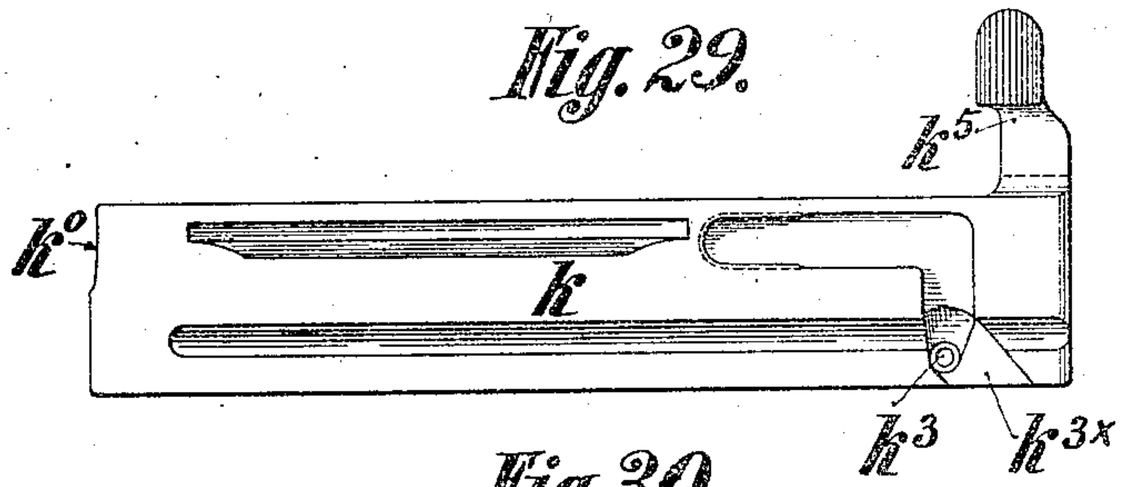


Fig. 30.

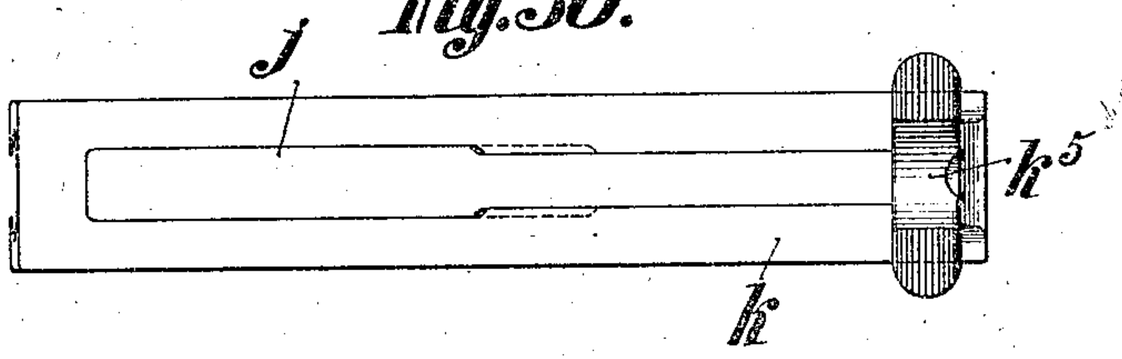


Fig. 31.

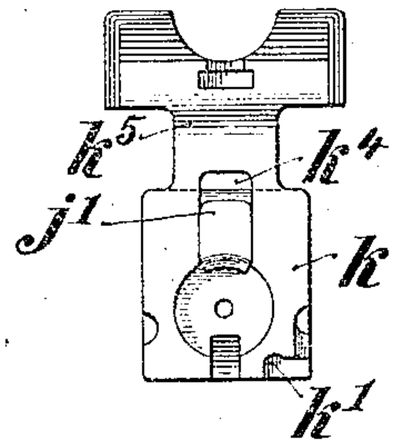
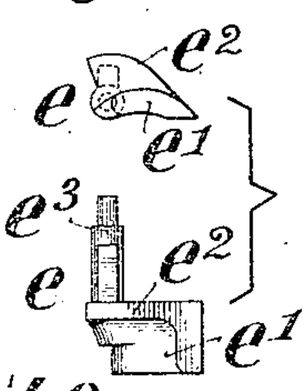


Fig. 34.



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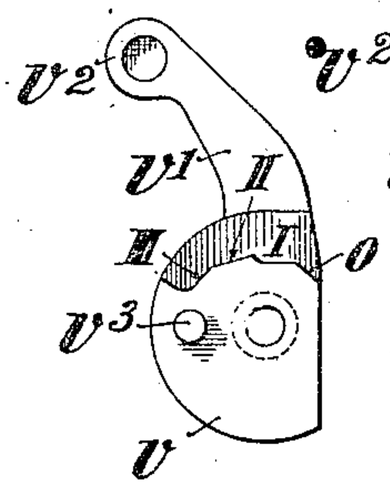

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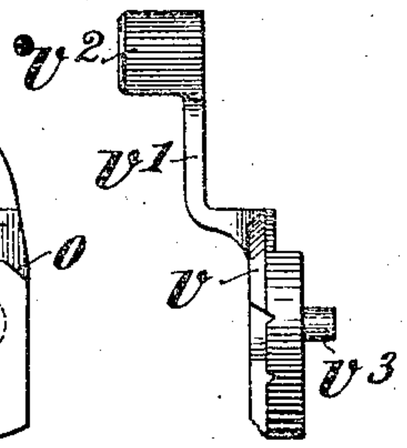

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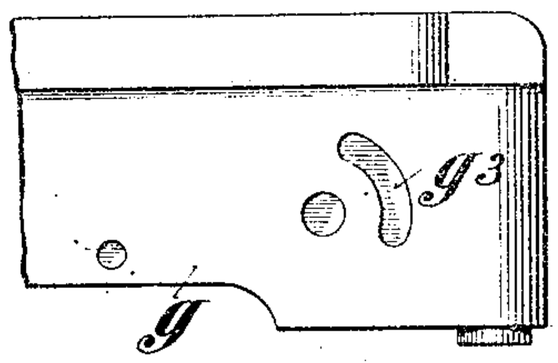

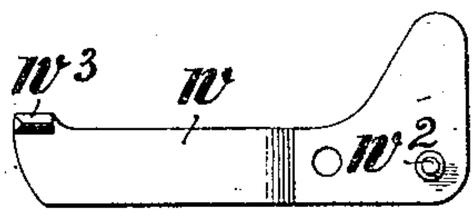

Fig. 45.

Fig. 46.

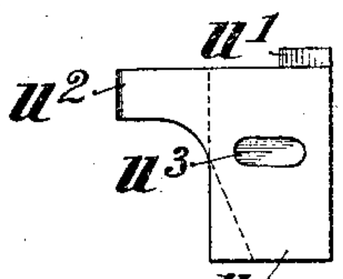

Fig. 4

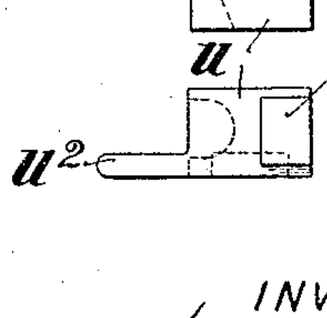

Fig. 4

WITNESSES:

Fred Whitey

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INVENTOR

Paul Mause

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FIREARM.

APPLICATION FILED JULY 9, 1907.

924,169.

Patented June 8, 1909.

13 SHEETS—SHEET 13.

Fig. 36.

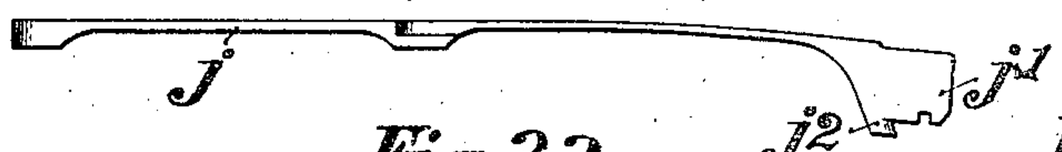


Fig. 32.

Fig. 33.

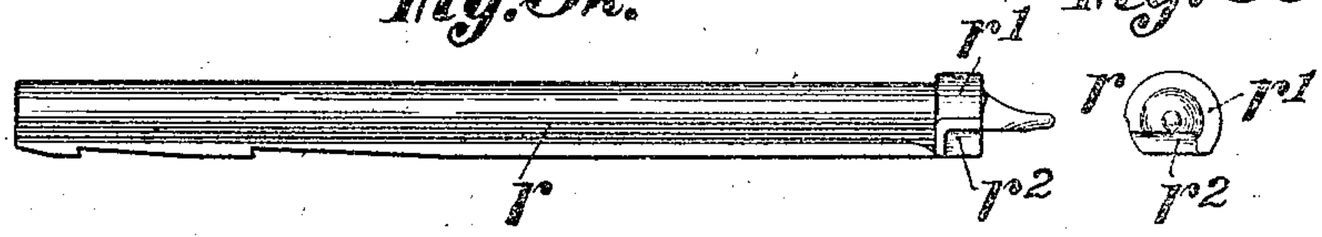


Fig. 37.

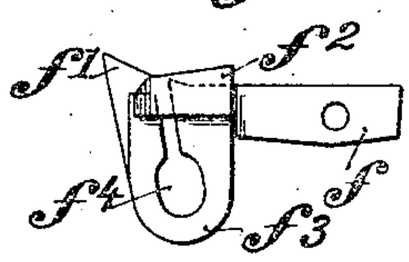


Fig. 38.

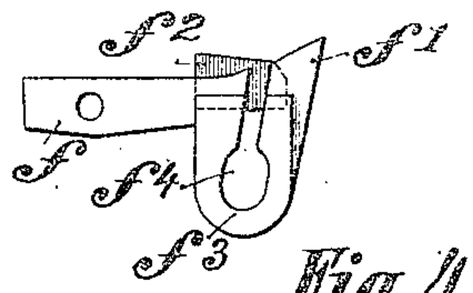
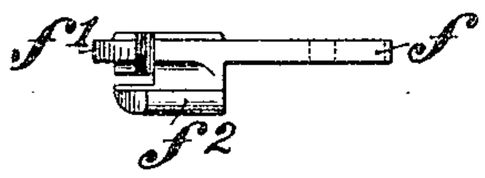


Fig. 39.



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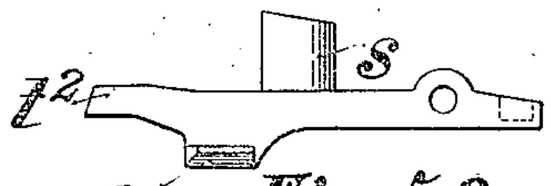


Fig. 50.

Fig. 52. Fig. 53. Fig. 51

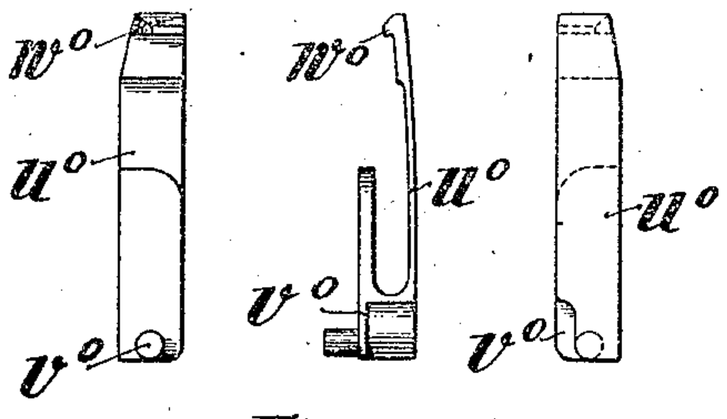


Fig. 48. Fig. 47.

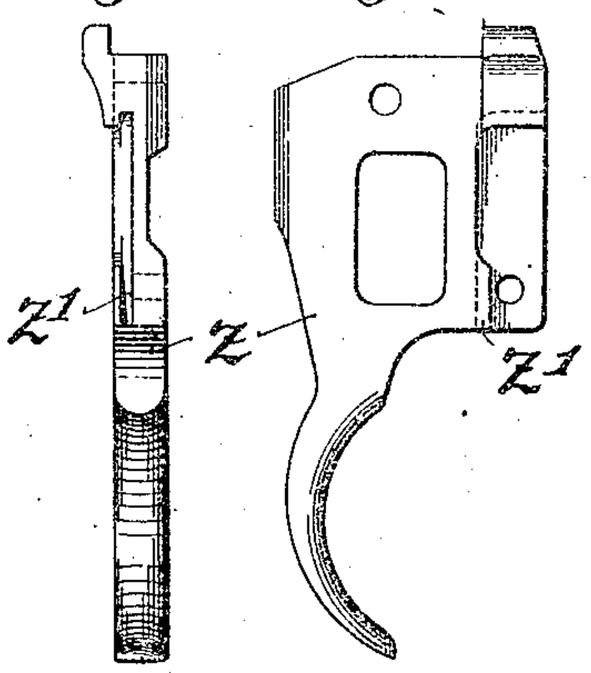
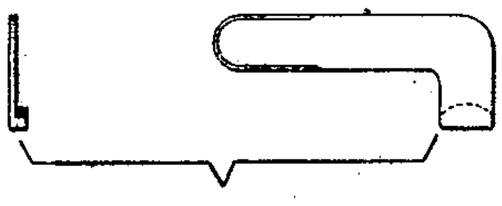


Fig. 35.



WITNESSES

Fred White

René Muine

INVENTOR:

Paul Mauser,

By his Attorneys

Arthur C. Fraser & Co.

UNITED STATES PATENT OFFICE.

PAUL MAUSER, OF OBERNDORF-ON-THE-NECKAR, GERMANY.

FIREARM.

No. 924,169. Specification of Letters Patent. Patented June 8, 1909.

Application filed July 9, 1907. Serial No. 382,925.

To all whom it may concern:

Be it known that I, PAUL MAUSER, royal commercial counselor, a subject of the King of Würtemberg, residing at Oberndorf-on-the-Neckar, in the Kingdom of Würtemberg, Germany, have invented certain new and useful Improvements in Firearms, especially recoil-loading weapons with sliding barrels, of which the following is a full, clear, and exact description.

This invention relates to improvements in fire arms, especially recoil-loading weapons with sliding barrels.

The improvements relate especially to the so-called lock of the weapon, that is to say, to the breech bolt and its locking mechanism, as well as to those parts which are arranged inside the breech bolt or are in exterior connection with the same and are adapted to effect the loading and firing by a regulated sequence of individual operations.

The invention not only relates to a new arrangement of the locking mechanism, the locking bolt of which is free to swing in the breech case and is a U-shaped block with a cradle-like rocking movement, but also to an improved arrangement of the adjusting device by means of which (when the weapon is automatic, that is to say, a recoil-loader) this recoil-loading rifle may also be used as a single-loader, while, in accordance with the invention, the arrangement is such that the adjustment of the rifle for single loading and automatic loading is regulated with the aid of the so-called barrel arrester (which serves the purpose of holding the barrel in its rearward position while the breech bolt advances), and that by means of this adjusting device, the rifle can also be placed at safety.

A further important novelty is that, in accordance with the invention, the movable barrel is spring-buffered at both ends for the advancing as well as the receding movement, so that impact is eliminated and a shockless working of the weapon, when opening as well as when closing the breech, is attained.

Improvements have also been made in the firing device, which, with the aid of new and simple means, is adapted to prevent premature ignition of the cartridges before the breech is locked when shooting; for this purpose, in accordance with the invention, mechanism having a compulsory movement and connected to the firing pin, is provided which retains the point of the firing pin behind the front surface of the breech bolt until the breech is actually in position.

The invention relates further to a new construction of the releasing device whereby the interlocking of the trigger and trigger studs and the ensuing pulling of the trigger, can only take place when the breech is in position and all parts have taken up their closed position. The trigger and trigger studs are for this purpose so mounted as to engage and be periodically released from one another.

At the same time the invention also relates to improvements with regard to those auxiliary parts which are essential for the removal of the fired cartridge, namely, the extractor and ejector; the extractor is so mounted in a closed head-like front part of the breech bolt as to be insured against slipping or jumping off, whereas with regard to the ejector the important and new improvement is effected by this ejector being elastically formed in order to yield somewhat upon shocks taking place, whereby the detrimental strain is eliminated.

The series of improvements in accordance with the invention finally ends with the arrangement of an adjustable auxiliary magazine for increasing at will the size of the stationary magazine, the former being so formed that it can be fastened to the stationary magazine in a simple and easy manner in order to form an extension of the latter, the capacity of which can thus be increased for a large number of cartridges. When using this auxiliary magazine no alteration of the stationary magazine or breech is necessary, as the interchangeable magazine completely corresponds with the stationary magazine, and the feed of the cartridges takes place in a similar manner as with the stationary magazine.

In the accompanying drawings is shown a recoil-loading rifle with sliding barrel (Mauser's system) provided with the improvements in accordance with the present invention, in which drawings—

Figure 1 is a longitudinal elevation of the weapon, partly in section, after being fired, adjusted for single loading, so that the unlocked breech bolt at the rear end of its course is prevented from advancing; the locking block itself is now in the unlocking position, allowing the breech bolt to recede. Fig. 2 is a longitudinal section of the locking block by itself. Fig. 3 is a cross section

through the locking block on line 3—3, Fig. 2. Fig. 4 shows the rear part of the weapon, with open breech and adjusted for single loading, whereby, however, the parts of the adjusting device are in the position for the momentary release of the breech bolt, in order to allow the latter to assume the closed position. Fig. 5 also shows the breech opened as in the preceding figure, the unlocked breech bolt being in its rear position and the locking block in the unlocked position, whereby, however, the adjustment of the weapon for single loading is such that the arresting mechanism of the adjusting device is not able to catch the backward flying breech bolt at the end of its course, the breech bolt being able to advance and recede in an uninterrupted sequence of movements, without having to be first of all released. Fig. 6 shows the weapon with locked breech, that is to say, so that the breech bolt is supported by the locking block while the latter is in the locked position, while the adjusting device is in the safety position and the trigger, barrel and breech, are insured against any movement. Fig. 7 is a longitudinal section of Fig. 6 and especially shows the arrest of the breech casing or frame and trigger catch by the safety studs. Fig. 8 is a longitudinal section of the weapon similar to Fig. 7, also with locked breech, seen however from the other side and unsecured so that the firing can take place, the spring ejector and the interlocking of the trigger catch with the trigger arm being particularly shown. Fig. 9 is a cross section on line 9—9, Fig. 8. Fig. 10 shows a longitudinal section of the weapon after having been fired, that is to say, with open breech, unlocked and receded breech bolt, the spring formed ejector being about to throw out the empty cartridge shell. Fig. 11 is a cross section on line 11—11, Fig. 10. Fig. 12 shows a side view, partly in section, of rear part of the opened weapon, while it is clearly shown that the weapon is adjusted for automatic loading, the adjusting device being, as in Fig. 5, so located that the relative catching or arresting studs in this position only retain the barrel, while they allow the breech bolt to spring forward without hindrance. Fig. 13 is a vertical cross section on line 13—13, Fig. 12. Fig. 14 is a similar section on line 14—14, Fig. 12. Fig. 15 is a plan of Fig. 12, the breech frame and breech bolt being omitted, and a part of the upper slide rail of the stock being broken off in order to allow the parts of the adjusting device to be seen. Fig. 16 shows the rear part of the weapon with receded barrel, the breech bolt being however in position in which its forward movement has pushed down the arresting studs so far that the breech casing or frame is released in order to be able to advance. Fig. 17 is a vertical cross section on line 17—17 of Fig. 16. Fig. 18 is a similar section on line 18—18, Fig. 17. Fig. 19 shows the arrangement of the simple buffer for receiving the backward impact of the barrel. Figs. 20, 21, 22 and 23, show the arrangement of the double buffers for annulling the forward as well as the backward impact of the barrel. Figs. 20, 21 and 22 are respectively a side view, a side view partly in section and a plan partly in section, showing the position of the parts with the barrel in its foremost position, and Fig. 23 shows the position of the parts in section when the barrel has sprung back. Figs. 24 and 25 show the action of the firing pin arresting device, which consists of a rotatable wing. Fig. 24 shows the relative parts in section with the arresting mechanism released and the firing pin head projecting beyond the forward end of the breech bolt, while Fig. 25 shows the arresting mechanism in action, the point of the firing pin being pulled back. Figs. 26, 27 and 28, show the interchangeable auxiliary or supplementary magazine respectively in side elevation, in plan and in end view, with lips projecting in the mouth of the magazine, whereby the exit of the feed plate or cartridges in the magazine, is prevented. Figs. 29, 30 and 31, are respectively a side view, a plan and a front view, of the breech bolt with the arresting wing for drawing back the firing pin taken off. Figs. 32 and 33 are respectively a side view and a front view of the firing pin. Fig. 34 shows a side view and a plan of the rotatable arresting wing. Fig. 35 is a front and side view of the angle shaped bent plate spring holding the arresting wing in position on the breech bolt. Fig. 36 is a longitudinal view of the extractor. Figs. 37, 38 and 39, show respectively the spring ejector as seen from the front, from the rear, and from the top. Fig. 40 shows the rear part of the stock or the magazine guide with the perforation for the guide pin of the safety stud. Figs. 41 and 42 are respectively a side view and a plan of the safety stud separately. Figs. 43 and 44 are respectively a side view and a front view of the rotatable adjusting disk of the adjusting device. Figs. 45 and 46 are respectively a rear elevation and plan of the spring plate for regulating the movement of the above mentioned disk. Figs. 47 and 48 are respectively a rear view and a side view of the trigger. Figs. 49 and 50 are respectively a side elevation and a plan of the sear studs or the trigger catch. Figs. 51, 52 and 53, are respectively a side view, a rear view and a plan, of the spring arm.

The general arrangement of the weapon is as follows: The breech system consists essentially of the following parts, namely: the mainly fork-shaped breech frame *h* connected at its fore part to the barrel *l* and sliding on the stock or frame piece *g* of the weapon, the breech bolt *k*, which performs

its opening and closing movement in this breech casing or frame h, the minor breech q, which temporarily receives the firing mechanism and which is located in the rear wall of the breech frame h, and the locking bolt b movably mounted in the rear part of the breech casing or frame h and adapted to lock the breech bolt in the closed position. This bolt, for the purpose of locking, and hence forming an essential part of, the breech mechanism, is, in accordance with the invention, formed like a U-shaped block b oscillating in a similar manner to a cradle, and, in consequence of its extending beyond its rocking center, is capable of acting as a double-armed lever. This block is suspended, by means of lateral pins or trunnions a, in corresponding forwardly slanting pockets h^1 in the breech frame h, these pockets h^1 being preferably open at the top so that, after removing the lid d which closes the rear part of the breech frame at the top, the locking block b can be taken out at the top without difficulty. The two fore and rear arms b^1, b^2 of the locking block b, are provided at their respective ends with noses or projections c^1 c^2 (Figs. 2 and 3), for which corresponding cavities g^1 g^2 are provided in the stock or frame piece g on which slides the breech casing or frame h carrying the locking block (Figs. 1, 6 and 15), so that by the coaction of these noses and apertures during the to- and fro-motion of the breech casing or frame, the alternate stopping of the block in the locking and unlocking positions is effected with a rocking swing around its pivot.

The mode of action of the locking block during the unlocking and locking is clearly shown in Figs. 4, 5, 6, 7, 8 and 10. In the locking position, (Figs. 6, 7 and 8) the locking block, with its forward arm b^1, is pointing down, and with its rear arm b^2 up; the projection c^2 of the rear arm b^2 has passed out of the corresponding aperture g^2 and lies on the full part of the slide rail, whereby the block is held in its above mentioned locking position. After the weapon has been fired, the breech casing or frame goes back with the locking block, the projection c^1 of the forward arm of the locking block rising out of the aperture g^1, while the projection c^2 of the rear arm b^2 of the locking block descends into the aperture g^2. In consequence of the upward motion of the projection c^1 in the aperture g^1, the locking block is swung so that its forward arm is upward and its rear arm downward, while the projection c^2 enters the aperture g^2 as above stated. As soon as this happens, the breech bolt flies back by itself to its rear-most position. Figs. 4, 5 and 10 show the parts in this position, that is the locking block b in the unlocking position, and the breech bolt k in its rearmost position, the barrel casing or frame being held fast. The return movement of the breech bolt, takes place, immediately it reaches the rearward position; as soon as the same approaches the end of its course, the breech casing or frame is also released, so that the breech bolt, breech casing or frame and locking block, then pass mutually into the locking position, while, as soon as the necessary play is provided by the projection c^1 entering the aperture g^1, the locking block is swung from the unlocking into the locking position by the cooperation of the projection c^2 and the slanting surface of the aperture g^2. As clearly shown in Fig. 8, the locking block, in the locking position, takes up such a position that the front surface of its front arm b^1 lies behind the rear end of the breech bolt, so that when the weapon is fired, the gas pressure or locking pressure is taken up by the whole of the front surface b^0 of the upper cross piece of the locking block, which surface b^0 abuts against the corresponding upper rear surface k^0 of the breech bolt. All the surfaces, during the locking, taking the pressure of gas in the direction of pressure, are hereby approximately at the same height, that is to say, they are arranged in the same center plane, and are respectively the face b^0 of the locking block cross piece, the upper part of the breech bolt k^0, as well as the shoulder surfaces of the rear arm b^2, and the bearing surfaces for the support of these shoulder surfaces in the rear wall of the breech casing or frame h, which surfaces with their pivots or trunnions, all lie approximately in, or at least symmetrically to, the same center plane. The bearing surfaces are curved radially so that they are capable of taking the gas or locking pressure on their length.

In the above described construction, nipples $k^\times$ are provided, symmetrically to the barrel axis, at the rear end of both sides of the breech bolt, in order to obtain greater bearing surfaces and a symmetrical support in the direction of the axis, the front surfaces of the front arms b^1 of the locking block b abutting against said nipples in the locking position (Figs. 6, 7 and 8). Thus two lateral supports, the nipples $k^\times$, and the arms b^1, besides the upper supports k^0, b^0 are provided, which in combination, insure a perfectly symmetrical support with ample security. The rear surfaces of the breech bolt nipples $k^\times$ are so correspondingly hollowed out to the curve radius of the front surfaces of the block arm b^1, that a close touch and easy movement of the block on the breech bolt is obtained. Corresponding grooves or channels $b^\times$ are formed on the inner walls of the locking block for the nipples $k^\times$, and in which said nipples slide when the breech bolt flies back. Thus an exact guidance for the breech bolt is obtained, and the locking bolt itself, while sliding into its unlocking position, is held rigid by the breech bolt or its nipples until the

breech bolt has passed into the locked position. The breech casing or frame, as previously mentioned, is, as soon as it has passed into its rearmost position, held fast until the backward flying breech bolt in the breech casing or frame has completed its return movement and again flying forward approaches the locking position. Hence, as soon as the breech bolt is close to the end of its path, the previously retained breech casing or frame is released, so that then, as mentioned in the description of the locking block action, the breech casing or frame and the locking block can pass, simultaneously with the breech bolt, which completes the forward motion with said breech casing, into the locking position. In this case a vertically movable stud x is arranged in the magazine ledge of the stock or frame piece g for fixing the breech casing or frame h, said stud having a lateral projection x^1 at its upper end and being influenced by a plate spring w^1 which lies with one end supported on the stock or frame piece g, while the other end acts indirectly on the stud. This plate spring has the tendency to hold the stud in the arresting position, in which position it projects in the path of the breech casing or frame h and in that of the breech bolt k.

The breech frame or casing h has a projection y on its side and a cavity y^1 in front of this projection y, both being so arranged that, when the breech frame or casing h is in its rearward position, the stud x is thus able to enter the cavity y^1 when the breech casing or frame is in this position, and to place itself in front of the projection y. This effects the fixture of the breech casing or frame and barrel in the rearward position. The breech bolt is provided on its lower side with a corresponding longitudinal groove k^1, in order to be able to slide over the stud, which groove ends at the rear in an oblique surface k^2. This surface is so arranged as to meet the stud when the breech bolt advances and thereby moves the stud downward, so that the shoulder x^1 of the stud disengages with the cavity y^1 of the breech casing or frame h; the projection y is thus freed of the stud x, so that the breech casing or frame, with the locking block, is advanced by the corresponding propelling spring, and thus the locking block is able to swing into the locking position. This securing mechanism is simultaneously capable of fulfilling another extremely important purpose; without the same, when using the breech bolt without nipples, the locking block might be moved too early into the locking position, that is, during the advance of the breech bolt through the locking block, in consequence of the advancing movement of the breech casing or frame, whereby the front end of the locking block would be pressed down on the advancing breech bolt and cause the latter to be subjected to a braking effect. The described securing mechanism thus insures the free advance of the breech bolt into the locking position when the breech bolt is without nipples, and the locking block is unable to swing with its forward end down until the entire breech bolt has passed out of the locking block. In this construction already described, the arrangement is such that the stud x of the barrel arrester, also acts as an important member of an arresting device on which the action of the weapon, used as a single-loader or automatic loader, depends, and, moreover, by means of which the securing of the parts against firing is effected. For this purpose, as shown in the drawings, an arresting device x^2, x^3, v connected to the stud, is provided, the principal part of which is the rotatable adjusting disk v provided with rests or recesses. This rotatable disk is mounted on a pin on the left hand side of the stock or frame piece g, near the end of the latter, and, so as to be easily manipulated from outside, it is provided with an upwardly inclined arm v^1 projecting above the magazine ledge, which arm has on its outer side a button v^2 destined for the thumb. The double armed lever x^2, x^3, which is pivoted inside the stock or frame piece g, acts as an intermediate member for transmitting motion between the stud x and the adjusting disk v; the front long arm x^2 of this lever engages in the stud x and is influenced by the strong plate spring w^1 fixed to the stock or frame piece g, while the short rear arm x^3 of the lever rests on the rim of disk v, which rim is provided with a number of steps or rests.

The disk v is provided on its outer surface with three rests 1, 2, 3, by means of which the single-loading, automatic loading and safety, positions are regulated. Engaging with these rests is the projection w^3 of a plate w acting as a spring catch, which is likewise fastened to the stock or frame piece g and which, with its powerful rear spring arm and engaging nose w^3, regulates the intermittent rotation of the disk from one position to the other. The screw for fixing this spring plate also carries the spring w^1, while the pin w^2 fixed to said spring plate, acts as a support for the lower arm of the spring.

As shown in Fig. 1, the position of the adjusting disk v for single-loading is such that the stud x is held by the double lever x^2, x^3, in the raised position, in which it places itself with its upper shoulder x^1 in front of the groove k^1 in the breech bolt, and thus prevents the latter from advancing. For this single-loading position, the nose w^3 of the spring plate w engages in the rest 1 of the adjusting disk v. When the parts are in this position, the function of the adjusting mechanism is such that the stud x, which passes down out of the track when the breech bolt

recedes, again rises as soon as the breech bolt reaches its rearmost position, and passes in front of the projection k^6 of the breech bolt, which latter is prevented from advancing until the release of the stud x is effected by the adjusting mechanism. In order to obtain a momentary release of the stud without having to turn the adjusting disk to the rest 2, for automatic loading, the rest cavity 1 is provided with a lateral outward slanting surface $v^\times$, and a raised stop o is provided on the rear side of the adjusting disk in front of the flat part I corresponding to the position of rest 1. The rest slant $v^\times$ allows the adjusting disk to be slightly turned back against the spring pressure of the spring plate w; during this backward rotation, however, the stop o operates the double lever x^2, x^3, in such a manner that the stud x is slightly depressed, its shoulder x^1 consequently releasing itself from the projection k^6 on the breech bolt, so that the latter is able to advance. This action is effected almost in a moment by a light rearward pressure of the thumb on the button v^2 of the arm v^1 of the disk v. If the button v^2 is released after the breech bolt has been released, then the parts of the adjusting mechanism, the disk v, and the double lever x^2, x^3, immediately return to the position corresponding to the normal position of the rest 1 for single loading; hence the stud x is able to assume its catching position when the next shot is fired. The position of the adjusting device just described, for momentary release for single-loading, is shown in Fig. 4, wherein it is evident that the denoted position only lasts while the thumb pressure acts on the button v^2. It follows therefore that the parts cannot remain in this intermediate position without this pressure, but immediately return, upon the pressure relaxing, to the normal position for rest 1. When adjusted to the position for self-loading, as shown in Figs. 5, 12 and 16, the adjusting disk v has turned from the position of rest 1 to that of rest 2, so that the nose w^3 engages with the rest 2, while the rear arm x^3 of the double lever x^2, x^3, rests on the raised stop II on the rear side of the disk v. The stud x is hereby permanently adjusted in a lower position so that its shoulder x^1 does not now project in the path of the projection k^6 and hence cannot stop the breech bolt; the latter is thus able to fly forward after every shot so that the charging is automatically effected without the aid of any special handle. Of course the stud x still lies high enough to be able to act as barrel arrester as previously described.

The safety position for which the rest 3 of the disk v is provided, is effected by means of the vertically movable safety block u arranged in the rear of the casing g, which block is so formed as to be capable of securing the trigger mechanism as well as the breech frame. For this purpose the block u is provided at its front part with an arm u^2 which is long enough to be able to be, when said block is in the operating position, under the projection t^2 on the sear s and thus prevent the latter from moving. The block carries a projection on its rear upper side, which, when the safety stud is in the operating position, projects in the path of the projection h^3 on the rear end of the breech frame h, that is to say, as shown in Figs. 6 and 7, projects into the cavity h^4 of this projection h^3, and thus prevents the breech frame from moving backward and also prevents the whole breech system from moving. The adjustment of the block u in the raised or operating position is effected by a guide pin v^3, on the rear side of the adjusting disk v, passing through the slot g^3 formed in the frame into the cavity u^3 in the safety block and thus causing the latter to move with it. In the safety position of the adjusting disk v, the nose w^3 of the spring plate w, engages with the rest 3 of the disk v, while on the rear side the lever arm x^3 rests on the flat surface III, whereby the stud x assumes its lowest position.

In order to obtain a shockless action of the weapon when opening as well as when closing the breech, in spite of the various strains, means are, as described in the introduction, provided for decreasing the impact of the movable breech casing. In Figs. 19, 24 and 25, is shown only a part construction of the principle of arranging a buffer p^1 solely with the object of taking up the recoil impact; the desired purpose can therefore only be obtained when the impact is weakened during the forward as well as during the backward motion. With this end in view it is necessary to so arrange elastic buffers that the recoil impact of the barrel after firing, and its forward impact when returning to its normal position, as well as that of the closing breech bolt should be taken up elastically. The special arrangement is shown in Figs. 20, 21, 22 and 23; the breech frame h, as shown, has a projection h^5 underneath at its fore end for its guidance, or in other words, for the guidance of the barrel on the stock while moving backward and forward, which projection slides in lateral grooves in the cavity p^0 formed in an extension from the magazine. The barrel-propelling spring is also mounted in said cavity. Two spring buffers p^2 and p^3 are mounted in the extension transversely to its longitudinal axis, one being at the front end and the other at the rear end of the path of the projection h^5. Thus the projection strikes the buffer p^2 when the breech frame recedes and the buffer p^3 when it advances, whereby all shocks are effectively taken up in both cases. As shown in Figs. 21 and 22, the projection h^5, when the breech frame is in its foremost

position, is firmly pressed by the buffer spring on the one hand and by the propelling spring on the other hand, so that the breech frame is insured against any movement in the locked position until it is thrown back by the recoil action.

As regards the firing mechanism, the general arrangement of the firing device is such that the movable hollow firing pin r in the breech bolt k, is guided backward in the tubular part of the minor breech q which carries the firing pin spring, the latter impinging with its fore end against the firing pin head and with its rear end against the part q^1.

The new arresting device for the firing pin consists, in accordance with the invention as shown at Fig. 24, (the details of which are shown in Figs. 29 to 35), of a wing e mounted on the side of the breech bolt, which wing is mounted with its spindle e^3 in a corresponding lateral cavity k^3 in the breech bolt, while the wing plate e^1 is provided with an upward pointing nipple e^2. When the wing is turned in, the nipple thereon projects into a corresponding recess $k^{3\times}$ in the breech bolt k and engages with a rest or cavity r^2 which is provided in the collar r^1 immediately behind the point of the firing pin r. During the opening and closing of the breech bolt the plate e^1 of the wing e slides on the magazine ledge g^0 of the stock or frame piece g. The wing is thereby raised and holds back, as shown in Fig. 25, by means of its nipple e^2, the firing pin r with its point behind the front surface of the breech bolt. As soon as the breech bolt is in the locked position the plate e^1 of the wing is free to pass into the cavity p^0 in the magazine ledge g^0. The wing is thereby so turned that, as shown in Fig. 24, its nipple e^2 no longer prevents the firing pin from completely advancing, but allows the point of the same to pass in front of the front surface of the breech bolt. In the construction shown the wing is detachably inserted in the corresponding cavity, and is adapted to be held in the latter by a spring, shown in Figs. 29 and 35, mounted in the side of the breech bolt, in order to prevent the wing from accidentally falling out when the parts are being disassembled.

It will be obvious that many features of the present invention can be used in connection with the invention set forth in my application No. 372,109.

The trigger mechanism (Figs. 8 and 10) is so arranged that the weapon can only be fired when the breech is locked and after the breech frame has advanced, means also being provided for the disconnection of the sear and trigger catch, thus freeing the latter after firing so that it shall catch the firing pin without fail in the next operation of the breech. For this purpose the trigger catch w^0 fixed to the trigger, has its upper end formed as a hook; the sear s has a projection t on its rear end, over which the hook w^0 of the catch projects when the parts are in the position for firing. In the position ready for shooting, the hook w^0 and the projection t lie the one above the other, so that, when the trigger is pulled, the sear is pulled down and consequently the firing pin released. After the trigger has been pulled and the shot has been fired, the hook w^0 is pushed sidewise by the bar t^1, when the breech frame, with the minor breech, is sliding back, so that the sear, that is to say, its projection t, is quite free of the hook w^0; the sear is thus able to catch the firing pin without being checked when the next opening and closing of the breech takes place. For facility of disassembling, the arm u^0 is provided with a recess at its lower end, so that, at the relative position, a projection or shoulder v^0 is formed, by means of which the arm can be pushed into a corresponding slot z^1 in the trigger. The fitting is effected by the lower end of the hook being suspended by a pin in the trigger and then turned 90° until the shoulder v^0 lies behind the wall of the slot z^1.

The spring-influenced ejector f, (Figs. 8, 10, 37, 38 and 39), oscillating in a recess in the magazine ledge, has an open topped hoop f^3 formed at its front part, the two side pieces of which are divided by a slot f^4 and are able to move toward each other. The front side piece has the rearwardly slanting point f^1 on its upper end, against which the cartridge base impinges when the breech bolt flies back. The front part of the ejector, being the spring hoop f^3, permits the front part with the point f^1, to yield backward when struck, whereby the force of impact is diminished and all possibility of the cartridge being damaged and consequently jamming is entirely eliminated. The amount of movement in the hoop is sufficient to leave play between the two legs for the strongest impact; they consequently never touch each other, and assure under all conditions ample elasticity for the impact of the cartridge base. The rear leg has a lateral shoulder f^2 which rests against the relative lower surface of the breech bolt and thus holds the ejector in position. This shoulder f^2 lies at the side of the longitudinal center slot, under the full part of the breech bolt, see Figs. 14 and 18, when the latter recedes and advances, whereby the ejector is held pressed down, so that its point f^1 does not project into the slot in the breech bolt and consequently cannot collide with the breech bolt locking spring i within the breech bolt bore. The front end of the breech bolt has a lateral recess, into which the shoulder f^2 can pass when the breech bolt has passed into its rearmost position and the front of the same is over the ejector, in order that the shoulder may be in the position to swing up into the position for action, see Fig. 10.

The connection between the extractor and its shank or leaf is secured in the usual manner by a dove-tail shaped joint on the top of the breech bolt k, while the fore end j^1 of the same having the projection j^2 is, however, not free on the breech bolt, but is inclosed by being surrounded by the head of the breech bolt. In the construction shown the end j^1 of the extractor is inside a recess k^4, which is closed at the upper part by a projection k^5 on the breech bolt serving the purpose of a handle. In consequence of the extractor being in this inclosed cavity, an exact guide for the same is obtained and the slipping on one side or jumping backward of the cartridge is prevented.

As regards, finally, the adjustable auxiliary magazine m^0, (Figs. 1, 26, 27 and 28), the same has a top plate m^1 which, of course is provided with an aperture for the passage of the cartridges, and corresponds in outer shape to the base plate of the stationary rifle magazine m. This plate is provided at either end with the hooks m^2 and m^3, the first of which (m^2) engages with a corresponding recess in the rear end of the magazine, while the other hook (m^3) engages with a similarly directed groove in the front of the magazine in exactly the same manner as the base plate of the stationary magazine is secured. The magazine, or in other words, the adjusting plate, is secured similarly to the base plate, namely, by a vertical spring actuated lock bolt in a bore in the front side of the magazine, which bolt engages with a corresponding hole in the hook m^3 and thus secures the adjusting plate against lateral movement. The stroke of this bolt is limited. The auxiliary magazine m^0 is fixed in position, after the base plate of the rifle magazine box m is removed, in exactly the same manner as the latter base plate. When the auxiliary magazine is to be detached, the point of the bolt engaging with the projection m^3 is pushed up and the magazine and plate pushed backward until the hooks are free of the grooves, whereupon the magazine can be readily detached downward. Spring lips l^0, connected to one another, are provided, which are adapted to prevent the cartridges from passing out of the magazine orifice when the magazine is taken off. In this particular case the lips are carried by a U-shaped plate pivoted by the pivots l^1 to the sides of the magazine, and the rear part of which is formed with a handle l^2 for the purpose of putting the lips in or out of action. When the magazine is adjusted, as shown in Fig. 1, the lips, of course, are out of action, the handle and plate being pushed down for this purpose. As soon as the magazine is taken off, the plate carrying the lips is pushed up into the position shown in Figs. 26 to 28, the lips being then in position to prevent the cartridges from leaving the magazine. It is obvious that one is not strictly confined to the means for securing the loose plate; any other securing means for the magazine might be provided underneath or at the side of the magazine casing. As previously mentioned in the introduction, no alterations in the arrangement and securing means of the stationary magazine are necessary for the use of the auxiliary magazine, as the latter, which has a capacity for a large number of cartridges, (10, 15 or 25), corresponds with respect to breadth and the feeding device to the stationary magazine.

What I claim as my invention and desire to secure by Letters Patent is:

1. In a fire arm, the combination of a breech bolt movable longitudinally and an oscillating locking bolt, said locking bolt being U-shaped so as to receive the breech bolt within it as the breech bolt moves backwardly, said locking bolt having at its forward end means for engaging the breech bolt to lock the latter in place.

2. In a fire arm, the combination of an oscillating U-shaped locking bolt, mounted in the barrel extension, said U-shaped bolt having an upper cross piece adapted to form a support for the breech bolt, and having arms having bearing surfaces b^0 at their front ends, grooves $b^\times$ running lengthwise of said bolt, said breech bolt having projections $k^\times$ for co-acting with said grooves, whereby the breech bolt is secured in the unlocking position until it again advances.

3. In a recoil loading fire arm, the combination of a movable barrel, means for arresting the barrel, and the breech bolt, and means for adjusting said first named means either to arrest both the barrel and breech bolt or to arrest the barrel alone.

4. In a recoil loading fire arm, the combination of a movable barrel, means for arresting the barrel, and the breech bolt, means for adjusting said first-named means either to arrest both the barrel and breech bolt or to arrest the barrel alone, and safety means, adapted to hold the barrel and trigger-mechanism in fixed position whereby the opening of the breech and the firing is prevented.

5. In a recoil loading fire arm, the combination of a movable barrel, means for arresting the barrel and the breech bolt, comprising a spring influenced stud adapted to move toward and from the paths of the barrel and the breech bolt, and means for actuating the said stud to move it from the path of the breech bolt while still remaining in the path of the barrel.

6. In a recoil loading fire arm, the combination of a movable barrel, a barrel arrester and breech bolt catch comprising a spring influenced stud adapted to move toward and from the paths of the barrel and the breech bolt and means for actuating the said stud to move it from the path of the breech bolt

while still remaining in the path of the barrel, said last named means comprising a disk with rests and a lever actuated by these rests either to raise the stud into the path of the breech bolt or to give it free way for going downwardly out of the path of the breech bolt.

7. In a recoil loading fire arm, the combination of a movable barrel, a barrel-arrester and breech bolt catch comprising a spring influenced stud adapted to move toward and from the paths of the barrel and the breech bolt, and means for actuating the said stud to move it from the path of the breech bolt while still remaining in the path of the barrel, said last named means comprising a disk with rests and a lever actuated by these rests, and safety means, adapted to hold the barrel and trigger mechanism in fixed position, said means comprising a vertically movable block loosely connected with the foresaid disk for being raised behind the barrel and into the path of a part of the trigger mechanism.

8. In a recoil loading fire arm, the combination of a movable barrel, a barrel-arrester and breech bolt catch comprising a spring influenced stud adapted to move toward and from the paths of the barrel and the breech bolt, and means for actuating the said stud to move it from the path of the breech bolt while still remaining in the path of the barrel, said last named means comprising a disk with rests and a lever actuated by these rests either to raise the stud into the path of the breech bolt or to give it free way for going downwardly out of the path of the breech bolt, the disk being adapted to automatically return from that position, in which the stud is moved out of the path of the breech bolt, into that position, in which the stud is raised toward the path of the breech bolt.

9. In a recoil loading fire arm, the combination with a trigger, a spring actuated part moved by said trigger and having a hooked end, a sear having a nose adapted to be engaged by said spring actuated part, means upon the sear for disengaging said part from said nose when the barrel extension has receded, said means comprising a projection such as t^1 adapted to engage said spring actuated part.

In witness whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

PAUL MAUSER.

Witnesses:
HENRY HASPER,
WOLDEMAR HAUP