

(No Model.)

6 Sheets—Sheet 1.

FERDINAND RITTER VON MANNLICHER.  
AUTOMATIC FIREARM.

No. 581,296.

Patented Apr. 27, 1897.

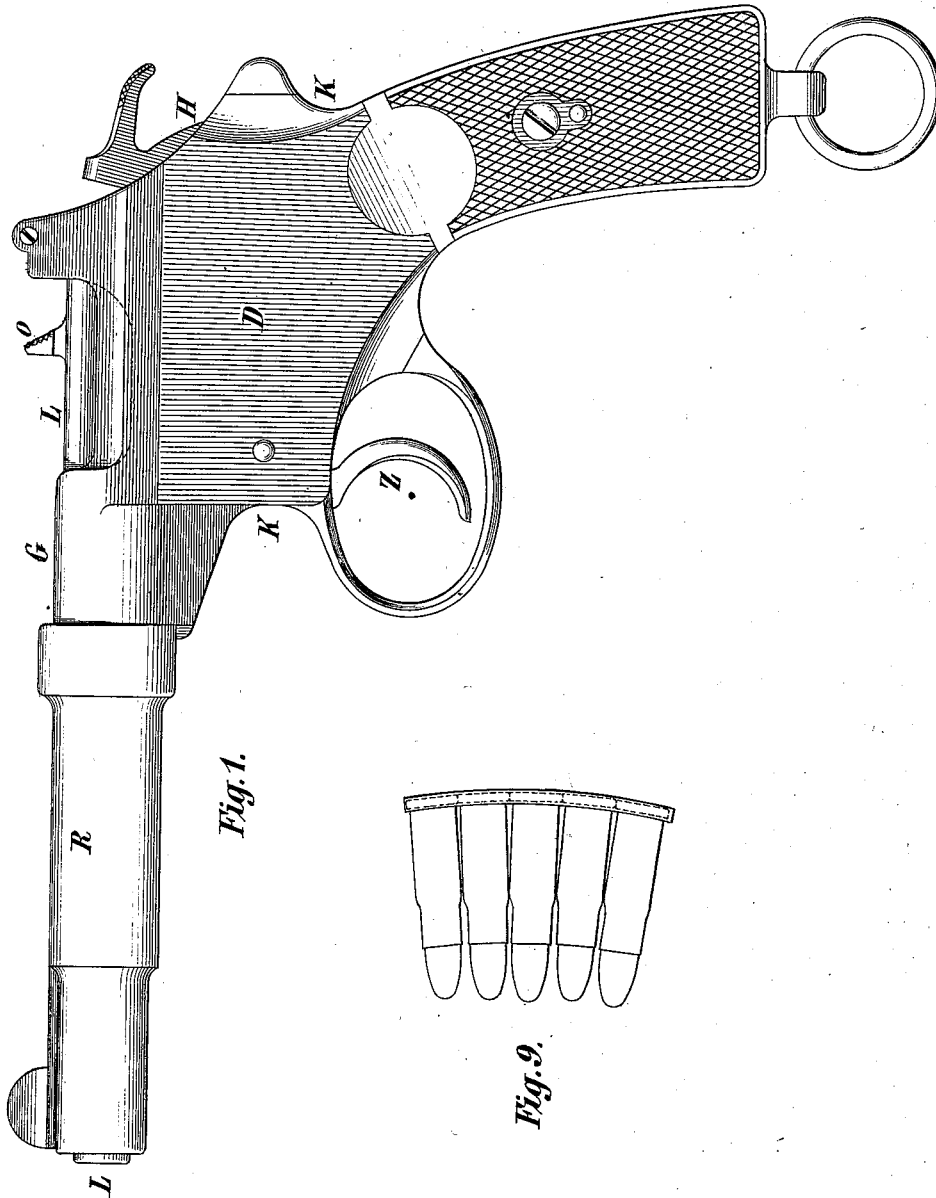


Fig. 1.

Fig. 2.

WITNESSES:

*A. Benesch.*  
*G. Kieckhefer.*

INVENTOR:

Ferd. Ritter v. Mannlicher  
by *Robert B. Jentzsch*  
ATTORNEY.

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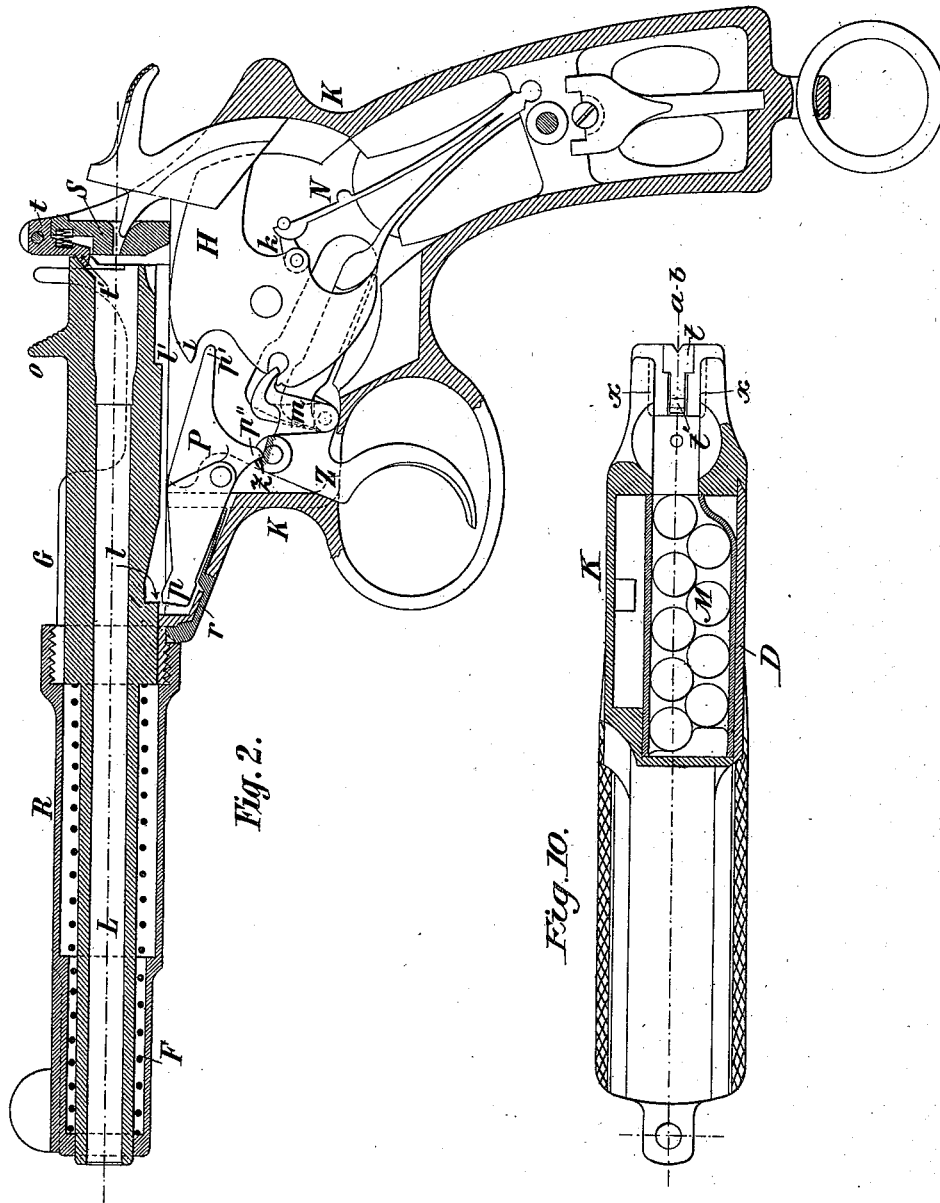


Fig. 2.

Fig. 10.

WITNESSES:

*W. Benesch*  
*G. Oetzi*

INVENTOR:

Ferd. Ritt. v. Mannlicher  
by *Robert B. Jentsch*  
ATTORNEY.

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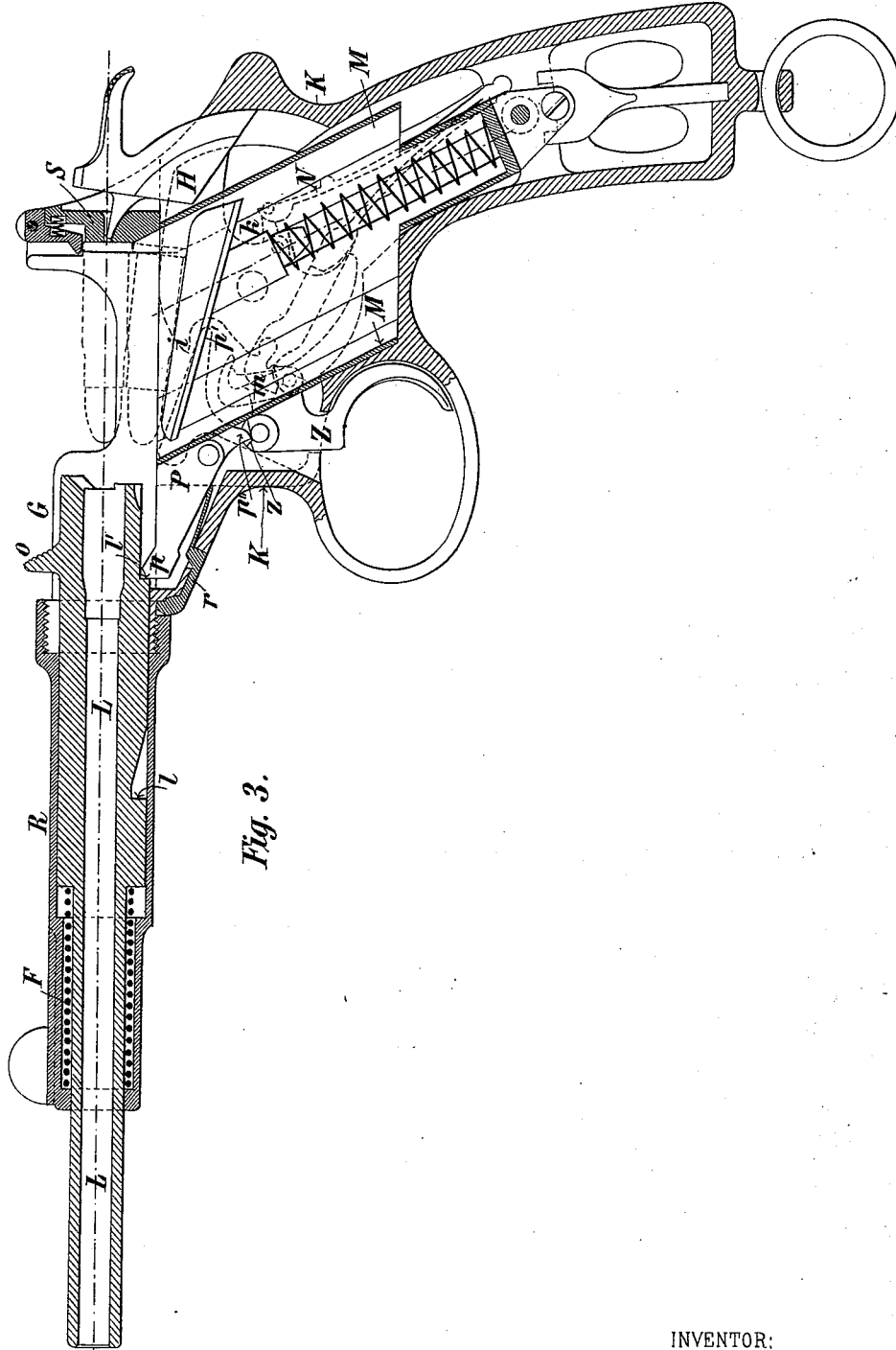


Fig. 3.

WITNESSES:

*A. Benesch.*  
*G. Beckniawny.*

INVENTOR:  
Ferd. Ritt. v. Mannlicher  
by *Robert B. Jentzsch*  
ATTORNEY.

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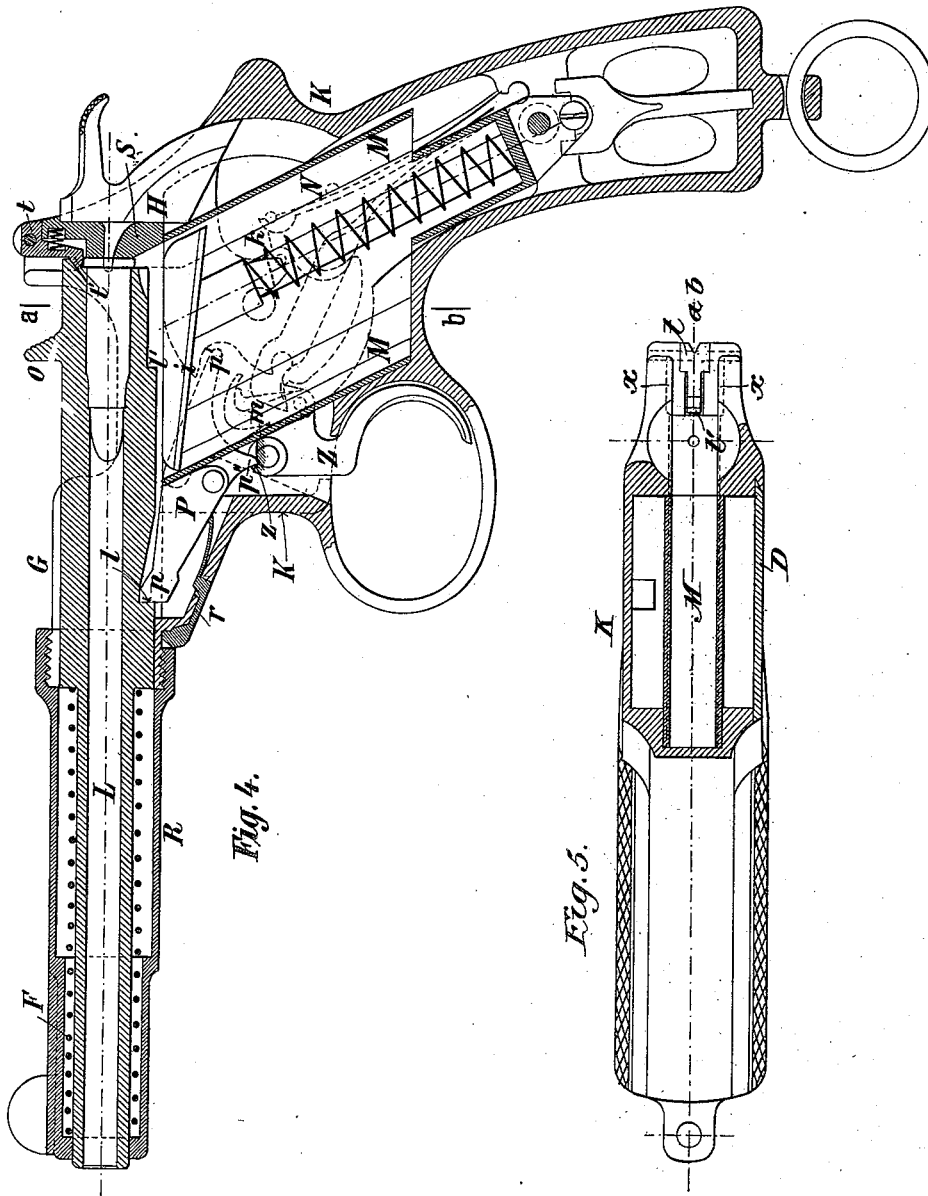


Fig. 4.

Fig. 5.

WITNESSES:  
*St. Benesch.*  
*G. Hockmayer.*

INVENTOR:  
Ferd. Ritt. v. Mannlicher  
by *Robert B. Lentzsch*  
ATTORNEY.

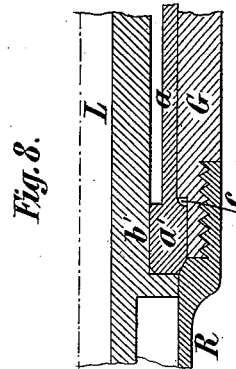
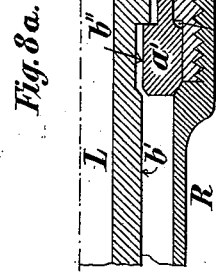
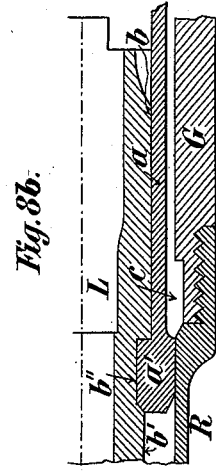
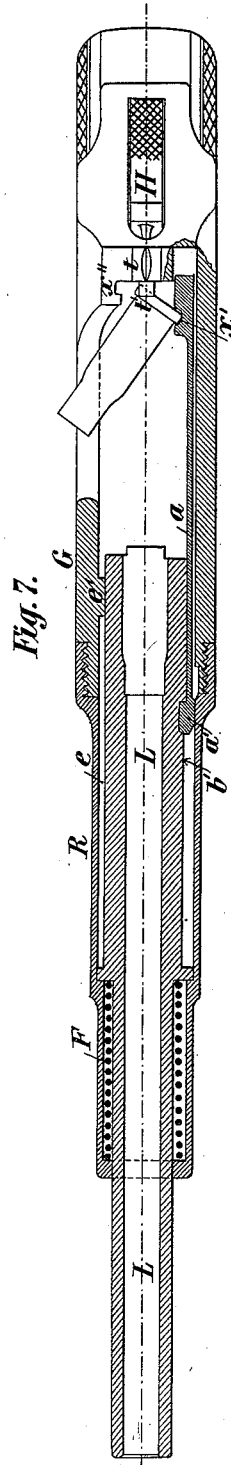
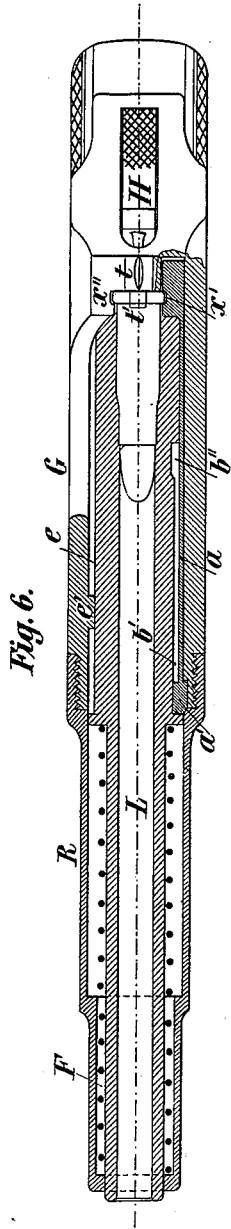
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FERDINAND RITTER VON MANNLICHER.  
AUTOMATIC FIREARM.

No. 581,296.

Patented Apr. 27, 1897.



WITNESSES:  
*H. Benesch.*  
*G. Pichniawy.*

INVENTOR:  
 Ferd. Ritt. v. Mannlicher  
 by *Robert B. Jentsch*  
 ATTORNEY.

(No Model.)

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Fig. 11.

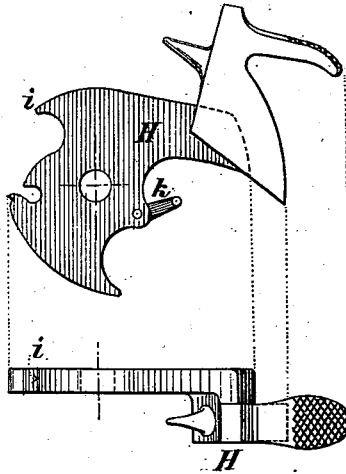
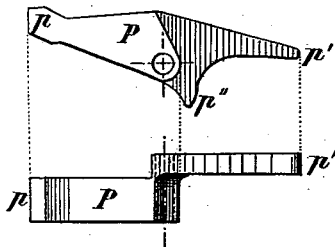


Fig. 12.



WITNESSES:

*Ch. v. Weimernann*  
*St. Benesch*

INVENTOR:

Ferd. R. v. Mannlicher  
by *Robert B. Jentzsch*  
ATTORNEY.

# UNITED STATES PATENT OFFICE.

FERDINAND RITTER VON MANNLICHER, OF VIENNA, AUSTRIA-HUNGARY.

## AUTOMATIC FIREARM.

SPECIFICATION forming part of Letters Patent No. 581,296, dated April 27, 1897.

Application filed March 4, 1895. Serial No. 540,556. (No model.) Patented in Austria July 3, 1894, No. 44/2,911; in Germany September 19, 1894, No. 81,020; in France September 22, 1894, No. 235,943; in Belgium September 24, 1894, No. 111,991; in Switzerland September 25, 1894, No. 9,333; in England September 26, 1894, No. 18,281; in Italy November 22, 1894, XXIX, 37,688, LXXIX, 54; in Hungary November 24, 1895, No. 4,593, and in Sweden December 31, 1894, No. 7,118.

To all whom it may concern:

Be it known that I, FERDINAND RITTER VON MANNLICHER, a subject of the Emperor of Austria-Hungary, and a resident of the city of Vienna, Austria-Hungary, have invented certain new and useful Improvements in Automatic Firearms, (patents for which have been granted to me in Austria July 3, 1894, No. 44/2,911; in Hungary November 24, 1895, No. 4,593; in Germany September 19, 1894, No. 81,020; in France September 22, 1894, No. 235,943; in Belgium September 24, 1894, No. 111,991; in Italy November 22, 1894, XXIX, 37,688, LXXIX, 54; in Switzerland September 25, 1894, No. 9,333; in Great Britain September 26, 1894, No. 18,281, and in Sweden December 31, 1894, No. 7,118,) of which the following is a specification.

My invention relates to that class of automatic firearms in which the barrel, which rests against a rigid tail or butt plate, is thrown forward by the action of the projectile at the firing of a shot and driven back again against the tail or butt plate by a spring.

In the annexed drawings a pistol of this kind is shown, of which—

Figure 1 is a side elevation from the left. Fig. 2 is a longitudinal central section with the magazine omitted, showing the internal mechanism in elevation. Fig. 3 is a similar view including the magazine, but with the barrel in its forward position after firing. Fig. 4 is a view similar to Fig. 3, but with the parts in the opposite extreme. Fig. 5 is a view taken on the line *a b* of Fig. 4, looking to the rearward, but with the barrel omitted. Fig. 6 is a horizontal section through the axis of the barrel, the mechanism at rest. Fig. 7 is a similar section of the pistol, showing the position of the mechanism at the moment of ejecting a cartridge-shell. Figs. 8, 8<sup>a</sup>, and 8<sup>b</sup> are longitudinal vertical sections, on a somewhat enlarged scale, through the rear part of the pistol on the line of axis of the barrel, showing the head of the ejecting-slide in its three principal positions. Fig. 9 shows, by way of example, a side elevation of a cartridge holding and charging clasp suited for

being used with this pistol. Fig. 10 shows in a section similar to that in Fig. 5 a modification of the magazine of this pistol. Figs. 11 and 12 show the hammer H and the lever P, respectively, alone in separate views.

In all figures similar letters of reference indicate like parts.

The mechanism of this pistol is, the same as in a revolver, inclosed in a frame K, which also forms the butt and which carries the receiver G. At the side this frame is closed by a cover or plate D, to which is attached the magazine M, so that both may be taken off together.

The barrel L is guided partly in the receiver G and partly in a tube R, which is screwed to the forward end of the receiver. Tube R contains the spring F for driving the barrel rearward and is provided with a suitable shoulder or stop on its inside, as indicated in the drawings, to limit and arrest the forward movement of the barrel. The receiver G is closed at its rear end by the breech or tail plate S, against which rests the end of the barrel, in its closed position, under the pressure of the spring F.

The construction of the lock of this pistol is exactly the same as that of a revolver with but one slight difference conditioned by the operation of the barrel. The frame of the lock must be of such depth that the firing mechanism will find place at the side of the magazine, which, as attached to the cover D, occupies a central position in the frame. The same as in revolvers, the hammer H may be cocked by a long steady pull upon the trigger, at the end of which pull it is released automatically and its point strikes forward through the breech-plate S. For deliberate aiming the hammer may also be cocked by hand the same as in a revolver, similar to which the hammer also springs back when the trigger is released.

The principal parts of the lock are the hammer H, with the link *k*, the mainspring N, the trigger Z, with the sear *m*, and the lever P, with the spring *r*. All the parts of the lock being known, with the exception of the

two last-named ones, the lever P and its spring  $r$ , a detail description of only these parts appears necessary. The lever P has to perform three different functions—viz., first, to prevent an accidental discharge of the piece; second, to arrest the barrel in its forward open position, after the firing of a shot, until the trigger has been released, thereby giving time for a second cartridge to rise from the magazine and take up its position behind the barrel; third, to keep the barrel in its open position while the magazine is being recharged. These operations are performed in the following manner:

The beak  $p$  of the forward arm of the lever P is pressed against the under side of the barrel L as this slides backward and forward by the spring  $r$ . At this under side the barrel is provided with two notches or rests  $l$  and  $l'$ , of which the former is about twice as deep as the latter and forms an incline. The end  $p'$  of the other opposite arm of the lever P stands in juxtaposition to a projection  $i$  of the hammer H, so as to prevent the latter from striking forward against a cartridge in all positions except when the beak  $p$  of the lever P has entered the deeper rest  $l$  in the barrel. As the shot is fired the barrel is carried forward, and in sliding over the beak  $p$  depresses this forward arm of the lever P by the incline formed by the notch  $l$ . The other opposite arm being thereby raised correspondingly, its end  $p'$  operates upon the projection  $i$  of the hammer and swings this latter back a certain part of its way. When the barrel has nearly completed its forward movement, the beak  $p$  springs into the other rest  $l'$  in the barrel, whereby this latter is arrested in a forward position. The stop or shoulder in the guide-tube R, which limits the forward course of the barrel, is situated somewhat farther forward than the position of the barrel as conditioned by the engaging of the beak  $p$  in the rest  $l'$ , so that at the firing of a shot the barrel will be thrown first slightly beyond this point of rest and will be arrested on its way back under the influence of its spring F by the beak  $p$ . The object of this will be explained farther on. The spring  $r$ , which operates the lever P, may be inserted from the outside, as shown in the drawings, and its head  $r'$  may spring into a notch in the end of the tube R, so as to prevent this latter from turning upon the end of the receiver G.

As long as the barrel is in its forward position the forward arm of the lever P, engaged in the rest  $l'$  of the barrel, is sufficiently depressed, and in consequence the end  $p'$  of the other arm of the lever P sufficiently elevated to prevent the hammer from protruding with its striking-point through the opening in the breech-plate S, as has already been described. The barrel remains in its forward position as long as the trigger is kept pulled back. When the trigger is released, it springs forward, and in doing so a shoulder  $z$  on its

hub, with which it is provided, strikes against a nose  $p''$  of lever P; whereby the beak  $p$  is lowered out of the rest  $l'$  and the barrel is liberated to be driven back against breech-plate S by its spring. In consequence of its very rapid movements the arresting of the barrel in a forward position is necessary in order to permit the rising of a fresh cartridge from the magazine. This takes place in the short interval of time between the final pressing of the trigger and the releasing thereof, during which time the barrel is arrested in its forward position. If the barrel is opened by hand by pushing it forward by means of its thumb-piece  $o$ , the hammer being also cocked by hand, it is evident that the beak  $p$  of the lever P can freely drop into the rest  $l'$  in the barrel, the shoulder  $z$  of the trigger in this case not being in a position to operate against the nose  $p''$  of the lever P, for the reason that, the same as in any self and hand cocking firearm, the cocking of the hammer by hand will throw back the trigger somewhat, so as to bring the trigger-shoulder  $z$  out of contact with the nose  $p''$  of the lever P. When the barrel has been opened by hand and is thus arrested, the magazine may be charged either with single cartridges or, by preference, by means of a charging-clasp, as shown in Fig. 9.

The magazine itself being of the well-known construction, a description thereof appears superfluous. For charging the magazine the breech-plate S is provided with two vertical grooves  $xx$ , into which fits the charging-clasp, Fig. 9. In the upper part of the breech-plate S is fitted a swinging stop-arm  $t$ , which is pressed by a spring  $u$  and the head  $t'$  of which is straight at the bottom, but slanting at the top part, so that when a cartridge-clasp or a single cartridge is pushed downward in the breech-plate S it will press against the upper slanting part of the head  $t'$ , and thereby cause the arm  $t$  to swing inward against the plate S. In this depressed position the arm  $t$  will permit the passage of a cartridge or of cartridges into the magazine below. As soon, however, as they have passed the head  $t'$  this latter will spring forward again and will prevent the topmost cartridge from being raised any higher by the feeder than just in line with the bore of the barrel. Thus when the barrel returns from its forward into its closed position it will slide over and receive the topmost cartridge in its chamber. Below the grooves  $xx$  and forming, as it were, a continuation thereof are two grooves  $x'x'$ , adapted to receive and inclose the rim of a cartridge. One of these grooves,  $x'$ , is worked into the breech-plate S, while the other,  $x'$ , is in the end of an ejecting-slide  $a$ . When the barrel is in its rearward or forward position of rest, the groove  $x'$  in the ejector-slide  $a$  stands opposite the groove  $x'$ , so that a cartridge may freely pass with its rim between them.

Supposing the magazine charged and the



barrel to be in its rearmost closed position, containing a cartridge, the firing of this cartridge will drive the barrel forward and will cause the ejecting of the emptied cartridge-shell in the following manner: The ejector-slide *a*, the rear end of which contains the said groove *x'*, in which rests the cartridge with one side of its rim, is guided in a lateral groove *b b'* of the barrel and extends forward to the forward end of the receiver G. The forward part *b'* of said guide-groove is deeper than the rear part *b*, and at the end of the deeper part *b'*, where the shallower part *b* commences, there is a recess *b''* in the barrel, still somewhat deeper than the deeper part *b'* of the groove.

The forward end of the slide *a* is provided with a head *a'*, which fits into the said recess *b''* and which is of such thickness that it will stand flush with the surface of the barrel when it rests in said recess *b''*. When at rest, the barrel being closed, the slide *a* occupies the position shown in Fig. 6, the position of its head *a'* being that shown enlarged in Fig. 8. Here head *a'* is situated at the end of groove *b'* and with its projecting part rests in a recess *c* in the side of the receiver G. When the barrel moves forward, the slide *a* remains in the position just indicated until the deeper groove *b'* has passed over its head *a'*, when the latter is struck by the forward edge of the shallower groove *b*, as indicated in Fig. 8<sup>a</sup>.

The forward end of the recess *c* in the receiver forming an inclined surface, corresponding to which the lower forward edge of the head *a'* is chamfered, it follows that as the slide *a* is now carried along with the barrel head *a'* will be pressed inward, so as to enter the recess *b''*. The forward movement of the barrel still continuing, the slide *a* will still be carried along until its head *a'* has entered the tube R and arrives in the position shown in Fig. 7 and enlarged in Fig. 8<sup>b</sup>. By this length of way, by which the slide *a* is carried forward and which is about equivalent to the length of the head *a'*, the barrel is permitted to move forward beyond the point at which it will be arrested by the beak *p* of the lever P engaging in the rest *l'*. Immediately upon arriving at its stop in the tube R, however, the barrel is driven back by its spring F and is now arrested in this open position by the beak *p*, as has already been described and shown in Fig. 3. By this short return movement of the barrel the head *a'*, and with it the slide *a*, has been carried back again into its original position. The described forward movement of the slide *a*, as caused by the barrel, being a very rapid one, it follows that the cartridge-shell, the rim of which rests in the groove *x'* of the slide *a*, will be ejected, as indicated in Fig. 7. The slide *a* having returned with the barrel its head *a'* has again entered the recess *c* in the receiver and the groove *x'* has again taken its position opposite the groove *x''* in the receiver, so that a fresh cartridge may pass upward from the

magazine and take up its position between the said two grooves. When the trigger is now released, so that it can swing forward, the beak *p* disengages the barrel, which is now driven back by its spring F over the cartridge, held in position by the grooves *x' x''* and by the head *l'* of the stop-arm *t*. When the hammer is now cocked, the pistol is ready for the next shot. In order to insure a correct rectilinear movement of the barrel, this may be provided with a groove *e* opposite to the groove *b b'*, into which fits a guiding projection *e'* on the receiver.

Instead of the magazine M shown in the drawings any other magazine may be employed with this pistol. The free space at the one side of the magazine M may also be utilized for enlarging the magazine, as shown in Fig. 10, so that it will hold a greater number of cartridges.

What I claim is—

1. In automatic firearms in which the sliding barrel is carried forward by the force of the projectile and driven back against a rigid tail-plate by a spring, the combination with the sliding barrel L, having a rest *l'*, of a lever P adapted to arrest the barrel in its forward, open position.

2. In automatic firearms in which the sliding barrel is pressed against a rigid tail-plate by a spring, the combination with the sliding barrel L, having a rest *l'* and a deeper rest *l*, of a spring-operated lever P, having a beak *p* adapted to engage alternately into the rest *l* and the rest *l'* of the barrel and an arm *p'* adapted to operate against a projection *i* of the hammer; substantially as and for the purpose set forth.

3. In automatic firearms in which the sliding barrel is pressed against a rigid tail-plate by a spring, the combination with the sliding barrel L, having a rest *l'* and a deeper rest *l*, of a spring-operated lever P, having a beak *p* adapted to engage alternately, into the rest *l* and the rest *l'* of the barrel, and having an arm *p'* adapted to operate against a projection *i* of the hammer, and a nose *p''*, and of a spring-operated trigger Z having a shoulder *z* adapted to operate against the nose *p''* of the lever P; substantially as and for the purpose set forth.

4. In automatic firearms in which the sliding barrel is pressed against a rigid tail-plate by a spring, the combination with the tail-plate S of a spring-actuated, swinging stop-arm *t*, adapted to permit the passage of cartridges into the magazine underneath, but to prevent the rising of a cartridge from the magazine any higher than in line with the chamber of the barrel; substantially as set forth.

5. In automatic firearms in which the sliding barrel is carried forward by the force of the projectile and driven back against a rigid tail-plate by a spring, the combination with the sliding barrel L, having a groove *b, b'* of variable depth and a recess *b''*, of a slide *a*,

operated by the sliding barrel and provided at its forward part with a head *a'* adapted to slide in the part *b'* of said groove *b*, *b'* and to enter into the recess *b''*, and in its rear part  
5 with a groove *x'* adapted to receive the rim of a cartridge, of a stationary groove *x''* opposite to said groove *x'*, and of a recess *c* in the receiver adapted to receive the head *a'* of said

slide *a*, substantially as and for the purpose set forth. 10

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

FERDINAND RITTER VON MANNLICHER.

Witnesses:

HARRY BELMONT,  
JOSEF ZEHETNER.