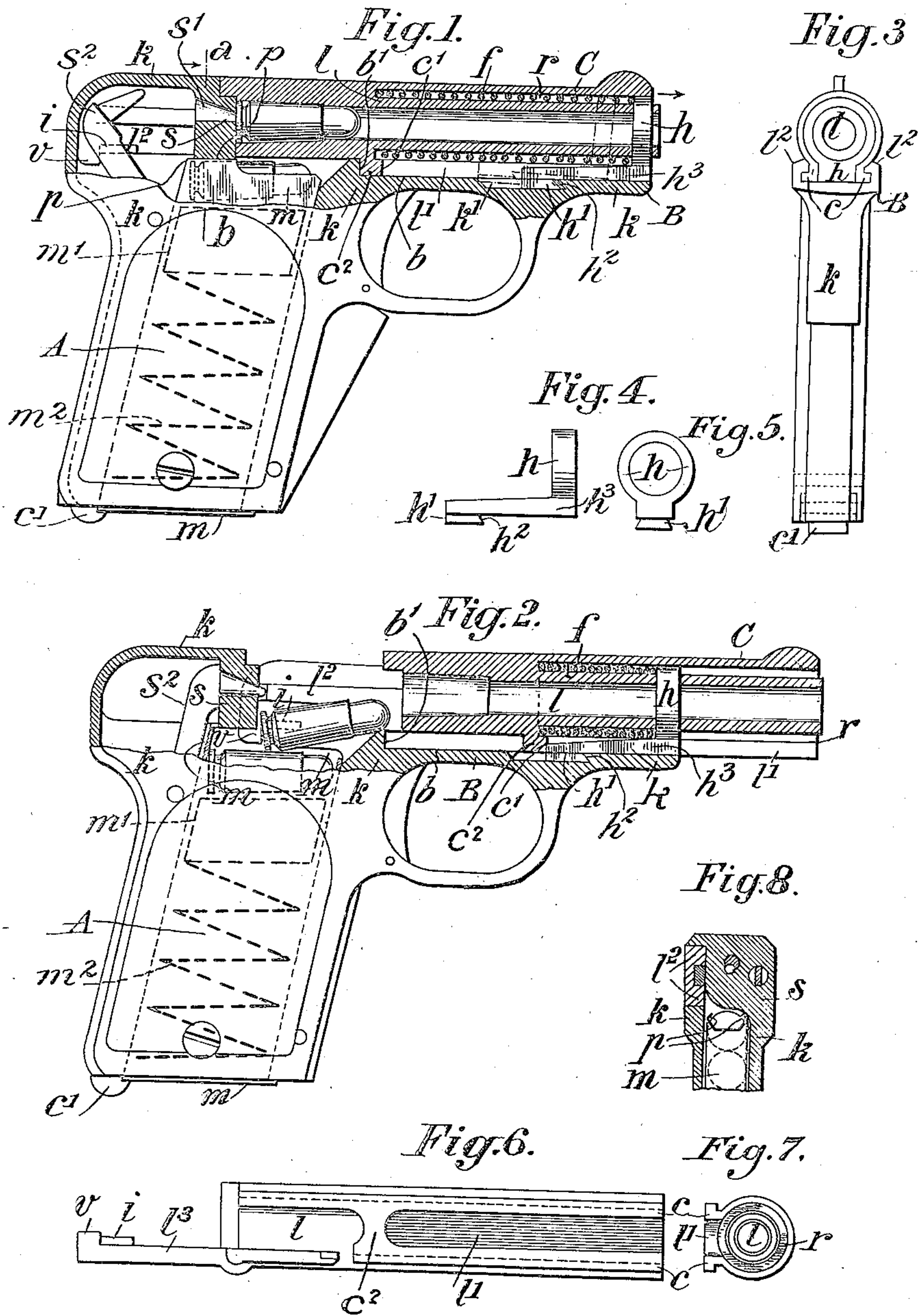


A. W. SCHWARZLOSE.
 AUTOMATIC FIREARM WITH FORWARD SLIDING BARREL.
 APPLICATION FILED AUG. 21, 1907.

918,380.

Patented Apr. 13, 1909.



Witnesses:

E. S. Singer.
 L. Waldman

Inventor:
 Andreas Wilhelm Schwarzlose
 by P. Singer Attorney.

UNITED STATES PATENT OFFICE.

ANDREAS WILHELM SCHWARZLOSE, OF BERLIN, GERMANY.

AUTOMATIC FIREARM WITH FORWARD-SLIDING BARREL.

No. 918,380.

Specification of Letters Patent.

Patented April 13, 1909.

Application filed August 21, 1907. Serial No. 389,560.

To all whom it may concern:

Be it known that I, ANDREAS WILHELM SCHWARZLOSE, a subject of the German Emperor, and resident of Berlin, Germany, have
5 invented certain new and useful Improvements in and Relating to Automatic Firearms with Forward-Sliding Barrels, of which the following is a specification.

This invention relates to improvements in
10 fire-arms of the automatic magazine type wherein the cartridges are fed to the barrel from a magazine and wherein the latter is slidably mounted so that when a shell is discharged the frictional engagement of the dis-
15 charging projectile will carry the barrel forwardly or outwardly whereupon it is returned by means usually in the form of a spring. In fire-arms of this class the cartridge is inserted in place by the barrel on its
20 return movement in readiness for the next discharge. This form of fire-arm has been objected to by reason of the fact that projectiles vary in size to such an extent that the frictional engagement thereof with the
25 barrel, whereby outward movement thereof is effected, is not always uniform. In projectiles of a relatively large diameter the frictional engagement is so great that the forward or outward movement of the barrel is
30 effected with such force that the recoil or reaction, due to sudden stoppage, returns the barrel so quickly that the next shell fails to assume a proper position. This fact will be
35 clear for the reason that the shells fed from the magazine are not positioned or held by positively acting mechanism or by mechanism having a gripping action on the shell, the latter being thrown into position. On the
40 other hand where the projectiles are under size the frictional engagement is not sufficient to carry the barrel forwardly to its outward limit of movement and complete the feeding operation. In prior constructions an effort has been made to avoid these defects
45 by making the bore of the barrel slightly less in diameter than the minimum diameter of undersized projectiles but in such constructions the disadvantages resulting from projectiles of over-size are encountered with
50 such detrimental results that bores of medium size have been found to serve the purposes with better satisfaction. In order to avoid these disadvantages it is proposed to increase the weight of the barrel and con-

veniently the same is provided with a chamber in which the usual spring is seated and that portion of the casing which usually surrounds the barrel and extends to the muzzle end thereof is almost wholly dispensed with and by means of this construction the extra
60 weight of the barrel, which of course results in an increased size thereof, is put to useful purpose and the cost of forming a barrel casing completely surrounding the barrel throughout its length is avoided.
65

A further improvement relates to a novel arrangement of the usual abutting or breech wall, against which the barrel strikes, with respect to the discharge end of the magazine whereby it is possible to avoid the use of
70 complicated cartridge retaining mechanism heretofore deemed necessary.

The invention consists in other novel features, will be more fully set forth in connection with the accompanying drawing and
75 will be more particularly pointed out and ascertained in and by the appended claims.

In the drawing: Figure 1 is a side elevation with parts in section illustrating a pistol in connection with which one embodiment of
80 my invention is shown. Fig. 2 is a view similar to Fig. 1 illustrating the parts in a different position. Fig. 3 is a front elevation of the device shown in Fig. 1. Figs. 4
85 and 5 are detail detached side and end views of one of the parts of my invention. Fig. 6 is a bottom plane view of the barrel and Fig. 7 is an end view thereof. Fig. 8 is a sectional view on line *a—b* of Fig. 1.

Like characters of reference designate
90 similar parts throughout the different figures of the drawing.

As shown *A* designates the stock and *B* designates a barrel support. A magazine *m* is removably secured in the stock *A* by means
95 such for instance as a catch *c'*. The shells are, as usual, arranged in superposed relation in the magazine and the latter is provided with a follower *m'* which is engaged by a
100 spring *m²* for the purpose of automatically feeding the cartridges to the barrel. The upper end of the magazine *m* is provided with rearwardly disposed cartridge retaining lugs
105 *p* which as shown are formed by bending the upper margins of the magazine inwardly, as shown in Fig. 8, so that they will overhang the rear or base portions of the uppermost cartridge.

A barrel or cartridge abutment is provided in the form of a wall *s* provided with an opening *s'* to accommodate the firing pin which as shown is mounted upon the hammer *s*². Said abutment *s* is located somewhat in advance of the rear wall of the magazine and the location of this abutment is determined with reference to the length of the cartridge so that when the latter is drawn out of the magazine, as illustrated in Fig. 2, the base of the cartridge will be located in close proximity to the abutment. It will be understood that in withdrawing the uppermost cartridge from the magazine a slight advancing movement of the cartridge is necessary and therefore the position of the abutment *s* is such that it will overhang the cartridge when the same is in a normal position and will be closely adjacent the rear end of the cartridge when the latter is withdrawn from the magazine. This disposition permits of a much more compact arrangement than has heretofore been possible by reason of the fact that no lost motion of the cartridge is necessary in the operation of picking it up by the barrel.

The barrel is indicated at C and is slidably mounted on the support B. Said support, as indicated in Fig. 3, does not extend around the barrel but is located beneath the same and is conveniently provided with a slide way *b'* having overhanging margins *b*² adapted to engage flanges *c* formed on barrel C to retain the barrel in slidable connection with its support. The slide way *b* extends rearwardly in said support a distance sufficient to permit rear-ward movement of the barrel C until the breach end thereof engages the abutment *s*. The flanges *c* are connected at *c*² and said connecting portion serves, in the position shown in Fig. 1, to engage the rear end *b'* of the slide way *b* to arrest rear-ward movement of the barrel C and, in the position shown in Fig. 2, to engage a rigid portion which as shown consists of a spring retainer to limit movement of the barrel in an outward or forward direction. Between the flanges *c* the barrel is cut away as indicated at *l'* and said cut away portion extends from the connecting portion *c*² outwardly to the end of the barrel. The support B is provided with a locking recess *k'*, desirably equal in width and registering with the cut-away portion *l'*, and having its front and rear walls inclined rear-wardly.

A spring retainer is provided and is adapted to be removably locked in position and as shown said retainer is provided with a heel portion *h'* adapted to seat in said recess. To this end, the said heel portion is desirably provided with a rear-wardly inclined front wall *h*² which is adapted to engage the front wall of the recess *k'* as clearly shown in Figs. 1 and 2. In order to facilitate insertion and withdrawal of the heel portion *h'* from the

recess *k'* the former is relatively reduced in length with respect to the latter. The body of said retainer *h*³ fits in the cut away portion *l'* and conveniently closes the same at its outer end as will be seen by reference to Fig. 3.

The barrel C is provided with a receiving pocket for the spring or in other words the spring may be considered as being operatively interposed between the barrel and a suitable stationary part, the barrel being supported from below and unprovided with a surrounding casing. If a pocket or receiver is provided for the spring it may be formed as indicated at *r* by forming the barrel with an annular chamber surrounding the bore and open at the muzzle end of the barrel. A spiral spring *f* is inserted in said chamber *r* and engages the inner end thereof and is interposed between the same and a circular portion *h* of the retainer which fits in said chamber *r* with a suitable working clearance. As shown in Figs. 1 and 2 the cut away portion *l'* intersects the chamber *r* so as to provide a suitable clearance whereby the heel portion *h'* may be conveniently inserted.

Cartridge feeding means is provided to severally engage the cartridges and feed the same into a position where they will be picked up by the barrel and desirably said feeding means performs its function during the forward movement of the barrel either when said forward movement is effected manually or by the discharge of a shell. In addition to this function said feeding means may also be provided with a cartridge retarder whereby upward movement of the uppermost cartridge into a pick-up position will be retarded and prevented being raised too high prior to the return movement of the barrel. Said feeding means as shown consists of an extension *l*³ which projects rearwardly from the barrel and which is provided on its rear-ward end with a feed lug *v* adapted to project into the path of and engage the rear end of the uppermost cartridge. For the purpose of permitting such engagement the rear wall of the magazine *m* is cut away in a manner clearly shown in Fig. 8. The retarding means consists as shown of a lug *i* which projects laterally from the extension *l*³ and as shown said lug *i* is located slightly in advance of the lug *v*. Said retarding lug *i* projects laterally from the extension *l*³ a sufficient distance to engage the periphery of the cartridge shell and temporarily restrain further upward movement thereof.

The method of assembling and operation is as follows: The magazine *m* is first filled with cartridges and is then inserted and locked in the stock, the portions *p* retaining the uppermost cartridge within the maga-

zine. The barrel C is now positioned in register with the slide way *b* and is moved rearwardly therein to the position shown in Fig. 1. The spring *f* is next inserted in place.

5 Subsequently the spring retainer, which also forms the barrel stop is inserted in a manner shown in dotted lines and then released. The action of the spring *f* on said retainer will tend to restore the part *h* to a vertical position and thereby force the heel portion *h'* into the recess *k'* until the inclined part *h²* engages the rearwardly inclined front wall of said recess *k'* as shown in Fig. 1. After such engagement has been effected the spring 10 will hold the retainer in position. Assuming that the parts are in the position shown in Fig. 1 and that the trigger is actuated to cause the hammer *s²* to engage the percussion cap of the cartridge the same will discharge and the outwardly moving projectile will force the barrel into the position shown in Fig. 2. Just prior to the time when the barrel has reached the limit of its forward movement the lug *v* will engage the uppermost 20 cartridge and draw the same forwardly from beneath the portion *p* of the magazine into the position shown in Fig. 2. The tendency of the spring *m²* acting through the remaining cartridges will be to suddenly force the released cartridge upwardly so as to bring the next uppermost cartridge into engagement with the retainers *p*. However such upward movement will be arrested by engagement of the released cartridge with 35 the lug *i*, as shown in Fig. 2, thereby preventing the next lower cartridge from reaching the retainers *p*. If it were not for the retarding lug *i*, or some equivalent means, the sudden movement imparted to the released cartridge would force the same upwardly between the abutment *s* and the breech end of the barrel. Having reached its forward limit of movement the spring *f* will return the barrel to a starting position. The lug *i* 45 will first free the uppermost cartridge whereupon the spring *m²* will raise the cartridges in the magazine until the uppermost cartridge engages the retainers *p*. This upward movement will be very sudden and will serve to raise the released cartridge into a position where it may be readily picked up by the barrel. By the time that the barrel has reached its rearmost position the released cartridge will have been picked up and will 55 occupy the position shown in Fig. 1.

I claim:

1. An automatic fire-arm comprising in combination, a stock provided with an automatic cartridge feeding magazine, a barrel support, a barrel slidably mounted thereon, a spring normally tending to return said barrel, an abutment for said barrel, and feeding and retarding means carried by said barrel serving to withdraw a cartridge from

said magazine and retain it in a prescribed position during a portion of the return movement of said barrel and subsequently release said cartridge. 65

2. An automatic fire-arm comprising in combination, a stock provided with an automatic cartridge feeding magazine, a barrel support, a barrel slidably mounted thereon, means normally tending to return said barrel, an abutment for said barrel, and feeding and retarding means carried by said barrel serving to withdraw a cartridge from said magazine and retard it from further movement during a portion of the return movement of said barrel and subsequently release said cartridge, said feeding magazine thereupon 70 forcing said cartridge into a pick-up position. 75

3. An automatic fire-arm comprising in combination, a stock provided with automatic cartridge feeding mechanism, a barrel support, a barrel slidably mounted thereon, means normally tending to return said barrel, and feeding and retarding means carried by said barrel cooperating with said cartridge feeding mechanism and serving to withdraw a cartridge from said magazine and retard 85 movement thereof under the action of said mechanism during a portion of the return movement of said barrel, said mechanism serving when said cartridge is released by said retarding means to force said cartridge 90 into a pick-up position. 95

4. An automatic fire-arm comprising in combination, a stock provided with automatic cartridge feeding mechanism, said mechanism being provided with retaining means for said cartridges, a slidably mounted barrel, means normally tending to return said barrel to a starting position, and feeding and retarding means carried by said barrel serving to withdraw a cartridge from said 100 retaining means and retard movement of said cartridge under the action of said mechanism during a portion of the return movement of said barrel and subsequently releasing said cartridge to permit said mechanism 105 to force the same into a pick-up position. 110

5. An automatic fire-arm comprising in combination, a stock provided with a magazine having cartridge retaining portions, mechanism normally holding said cartridges in engagement with said portions, a slidably mounted barrel, means normally returning said barrel to a starting position, said barrel having an extension provided with a feeding and a retaining lug adapted to engage a cartridge and withdraw it from said portions and retard its movement under the action of said mechanism during a portion of the return movement of the barrel and subsequently releasing the cartridge to permit said mechanism 115 to force said cartridge into a pick-up position. 120

6. An automatic fire-arm comprising in

combination, a slidably mounted barrel provided with inner and outer walls forming a spring inclosing chamber open at the muzzle end of the barrel, a spring located in said
5 chamber, and a spring retainer projecting into said chamber and engaging said spring.

7. An automatic fire-arm comprising in combination, a slidably mounted barrel provided with inner and outer walls forming a
10 spring inclosing chamber, a support for said

barrel, a spring disposed in said chamber, and a spring retainer removably secured to said support and projecting into said chamber into engagement with said spring.

In testimony whereof I have hereunto set my hand in presence of two witnesses.

ANDREAS WILHELM SCHWARZLOSE.

Witnesses:

WOLDEMAR HAUPT,
HENRY HASPER.