

N^o 9040



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COMPLETE SPECIFICATION.

Improvements in or connected with Breech Loading Small-arms.

I, GEORG LUGER, of 34, Weimarer Strasse, Charlottenburg, in the Empire of Germany, Engineer, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement, reference being had to the drawings hereto
5 annexed, and to the figures and letters marked thereon that is to say:—

The object of this invention is to render more reliable and simplify the manipulation of breech loading fire-arms with movable barrels, and it mainly consists of an arrangement of catches adapted to come into action automatically by which means in the first place both the barrel and trigger are invariably locked in
10 position, or in other words, rigidly connected with the weapon except when it is being fired, whilst on the other hand with a view to ensuring freedom of motion to those parts, preparatory to firing, they are made capable of being thrown out of action by the act of firmly grasping or shouldering the fire-arm without their disengagement necessitating any special movement of the hand, which in the case
15 of breech loading guns is a point of importance inasmuch as this class of fire-arms, in order to be capable of fully effecting their object must firstly, be at all times ready for firing, a condition which should be independent of any separate manipulations, and secondly, must afford reliable protection from any unintentional movements of the barrel, such as may be caused by knocking up against any
20 other body or by a similar accident, and which would be liable to actuate the breech and discharge the weapon.

Several forms in which the invention may be carried out in connection with breech loading pistols, although it is equally applicable to breech loading fire-arms of any other type, are shown in the accompanying drawings in which like
25 parts are indicated by similar letters of reference.

In the accompanying drawings.

Figure 1 is a side elevation partly in section with the parts of the catches or locking devices exposed and shown in their operative position, the arm being
cocked for firing.

30 Figure 2 is an axial horizontal section of the same.

Figure 3 is a transverse section taken on the line $x-x$ of Figure 1, looking towards the left.

Figure 4 is a view similar to Figure 1, but with the locking devices supposed to have been brought to the inoperative position and the arm having been fired.

35 Figure 5 is an axial horizontal section of Figure 4.

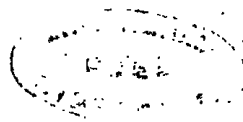
Figure 6 is a transverse section taken on the line $y-y$ of Figure 4 looking towards the left.

Figures 7 and 8 are supplementary diagrammatic figures corresponding with figure 4 and illustrating the position of the parts whilst the breech is being
40 opened by the recoil.

Figure 9 is a top view or plan of the breech when closed.

Figures 10 and 11 show similar forms of mechanism, but with a slightly modified arrangement of the automatic catch.

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As is usual in breech loading fire-arms, the mechanism here adopted consists of three main parts namely the barrel A with the sleeve or socket B integral or rigidly connected therewith, and constructed in the shape of a fork; the breech block *c*; and the case C, in which the barrel A together with the fork shaped sleeve B is guided, and which in the case of pistols or the like generally should preferably terminate at its lower part, in the form of a handle or pistol-butt, as shown.

It is in these three parts that all the minor components of the weapon are located in their proper positions.

Now the arrangement forming the subject of the present invention is as follows:—

On one side of the case C is provided a catch or bolt *s* pivotted at *s*¹. This catch is by a spring *s*² normally forced upward into the path of the sleeve or socket B, movable with the barrel A, and against a shoulder or stop *k*², directly or indirectly attached to the said sleeve or socket in a corresponding position; whereby any unintentional movements given to the barrel, which accidental impacts or the like might tend to impart thereto, and the consequent unintentional operation of the breech are automatically prevented or whereby, in other words, the barrel is kept rigidly connected with the case C and thus firmly maintained in its normal position as shown in Figure 1.

The retraction of the catch may be effected in various ways according to the arrangement of the parts but in the forms of mechanism represented in Figures 1 to 6 this effect is produced by tightly grasping the butt or handle C when the releasing lever *d* projecting beyond the general surface of the handle and turning on the pivot *d*² will act with its tooth shaped end *d*¹ upon the lower end of the catch or bolt *s* and depress its upper end and move it away from the projection *k*² and the trigger rod support *k*³, overcoming the resistance of the spring *s*² as it does so Figure 4; so that the socket or sleeve B movable with the barrel A, becomes free to slide back when the pistol is discharged.

As illustrated by the examples here given, the trigger mechanism is so connected with the automatic catch, that firstly, as a condition precedent to firing an open path is invariably provided for the free motion of the barrel as otherwise that is, if the weapon could be fired when the barrel is rigidly fixed, the catch *s* would alone receive the recoil whilst, secondly, firing is rendered impossible so long as the barrel continues locked against movement.

Concurrently with this automatic barrel locking arrangement, provision is further made for automatically securing the trigger and for this purpose the catch *s*, which checks the motion of the barrel is adapted to engage with the trigger lever *k* which holds the firing pin *e* in the cocked position of the weapon by engaging by its catch *k*¹ the shoulder *e*¹ and thereby to resist the lateral motion of said lever so that the pistol cannot be discharged by merely pressing upon the tongue *z* of the trigger inasmuch as said tongue through the medium of the double armed lever *a* pivotted at *a*¹ transmits such pressure to the pin or stud *k*⁶ of the trigger lever *k*, which is here adapted to oscillate horizontally on the pivot *k*⁵ but that, in order to fire the pistol a release must first be effected by firmly grasping the knob or butt C and thereby pressing the lever *d* inward and retracting the catch *s* so as to liberate the parts which have before been automatically locked; this operation being illustrated by Figures 1 to 6.

In order if necessary still further to secure in its locked position the mechanism, serving automatically to arrest the barrel and trigger so that the parts must in all cases be intentionally released before firing, the following supplemental arrangement has been adopted.

On the releasing lever *d*, in the form of the device shown in Figures 1 and 4 there is arranged in a convenient position a button or stud *d*^{1*} which together with the trailing spring *d*³ is capable of being moved up and down in a corresponding slot of that lever and of being fixed in either of two positions by the said spring engaging in corresponding notches provided for the purpose.

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A recess C^1 is provided in the butt or handle C of the weapon into which the stud d^{1*} is adapted to enter whenever it comes to be situated opposite such recess.

Now as shown in Figure 1 when the stud d^{1*} is situated above the recess C^1 of the butt or handle C the releasing lever d cannot be pressed inward no matter
 5 how firmly the butt or handle C may be grasped, and consequently the catch or bolt s which is or may be linked thereto by a fork shaped or other suitable flexible connection, and retains the trigger lever in the inoperative position cannot be moved so that the breech arresting effect which would in any case be produced automatically may be additionally ensured by the stud or button d^{1*} being
 10 specially moved for that purpose.

This locking of the rearwardly projecting releasing lever d further affords the material advantage of enabling the marksman to satisfy himself of the degree of security of the locking the moment he grasps the pistol, and to proceed accordingly.

15 Upon moving the button d^{1*} down to the dotted position the barrel and breech remain secured in their automatically locked position against any unintentional release which might be caused by knocking up against an obstacle, by falling, or by a like accident, until by the knob or butt C being grasped, the lever d is pressed inward as illustrated in Figure 4, when both the barrel and trigger will
 20 recover their freedom of movement.

In the form of mechanism shown in Figure 10 the finger piece d which forms the releasing device is situated on the front of the butt C in which position, when the butt C is grasped, said piece d is pressed inward with the fingers, when
 25 by means of the rod d^1 it will move the locking device s out of engagement with the firing lever k in opposition to the pressure of the spring s^2 .

To provide for cases where it may be desired to additionally secure the automatic locking device s in its locked position the spindle or pivot d^4 of a lever carrying the stud d^{1*} is here formed with a notch d^5 extending half-way across its diameter and so arranged that in the position of the parts depicted in this figure,
 30 the said catch or locking device s comes to be located upon the solid part of said lever spindle d^4 and is thereby rendered stationary; while upon turning the lever by its button d^{1*} in a forward direction so as to bring the notch or releasing portion d^5 of the lever spindle opposite to the catch or locking device s this locking device is freed and rendered capable of restoring the freedom of motion
 35 of the barrel and trigger; the button or stud d^{1*} is secured in the proper positions by spring action.

In the modification shown in Figure 11 for the purpose of avoiding the necessity of having too many parts in the mechanism the locking device or catch s is made integral with the releasing lever or finger piece d of the trigger.

40 This part of the mechanism at its lower end within the pistol butt is pivoted at s^1 and one end thereof extends up to the breech where under suitable spring pressure (s^2) it is held in engagement with the trigger rod k whilst the back of said device extends rearward and projects from the back of the butt or handle C in a manner corresponding to the arrangement shown in Figures 1 and 4.

45 The arrangement here adopted in connection with the releasing device d which serves whenever required for further securing the entire mechanism of the lock or catch s in its locked position is also similar that is to say by moving the button or stud d^{1*} upward its spring d^3 is caused to engage with the under-cut or recessed portion C^2 of the case C and thus any forward movement of the releasing
 50 device d is prevented.

The forms of mechanism embodying the invention hereinbefore shown and described are considered preferable but they are shown by way of example, and may as will be readily understood, undergo such modifications as the special form or type of fire-arm to which they are to be applied, whether constructed with a
 55 cylindrical, a block or any other form of breech may require.

The parts may be located in different positions and act either directly or

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indirectly, according as they are applied to barrels movable simply longitudinally or merely revolving, or again constructed to combine the two kinds of motion.

The finger pieces or releasing devices *d* also, which effect the release of the automatic catch or bolt *s* may, in the case of rifles for example, be arranged on the cap of the butt end or shifted to a convenient position on the front part of the stock; the main condition being that the arrangement should secure the essential object of automatically and simultaneously locking the barrel and trigger mechanism during the time that the weapon is not required for firing, and that this should be effected, through spring action, by means of devices, such as *s*, adapted to lock or arrest both the barrel and trigger lever and to be released without any special movement of the hand by merely grasping or shouldering the weapon, in doing which a finger piece or releasing device such as *d* is actuated as a matter of course and depressed in opposition to the resistance of a spring. 5 10

Having now particularly described and ascertained the nature of the said invention and in what manner the same is to be performed, I declare that what I claim is:— 15

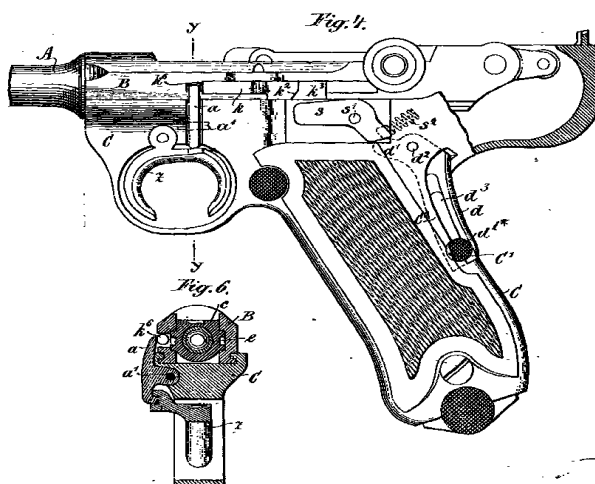
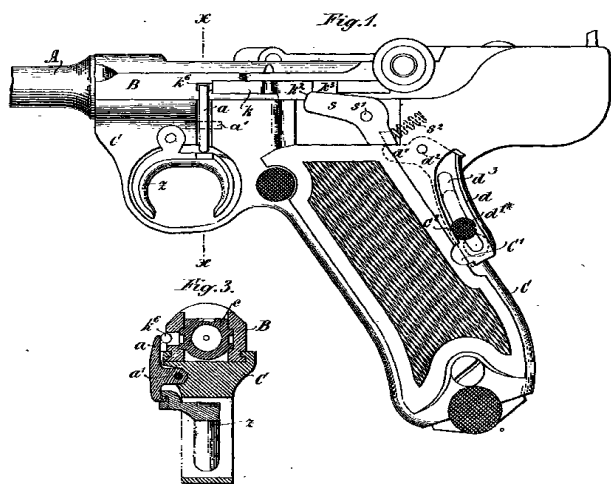
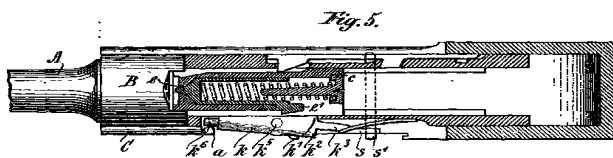
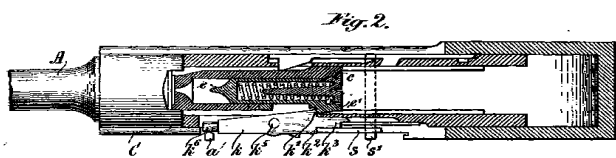
1. An automatic catch or locking device for arresting simultaneously the movable barrel and trigger mechanism in breech loading fire-arms its main feature being that locking devices such as *s* placed under the influence of continuous spring action are adapted to come into engagement both with stops such as *k*² connected with the barrel and with the trigger lever *k* which serves to keep the firing pin *e* in the cocked position so as to check the same inversely to the direction in which it is movable, so that it is at all times automatically and rigidly connected with the fire-arm, unless it be required for firing; whereas when it is to be fired, the said devices may be moved out of engagement without any special manipulation by simply grasping or shouldering the arm and by this act operating a finger piece or releasing device such as *d* in opposition to the resistance of a spring such as *s*² substantially as herein shown and described. 20 25

2. In combination with a device of the character referred to in the preceding claim, locking means actuated by elements or studs such as *d*¹* capable of sliding or rotating and controlling the releasing lever *d* and adapted to be adjustably fixed by means of springs *d*³, such locking means being provided as additional appliances for securely fastening the locking devices or catches *s* when they are in action substantially as herein shown and described. 30

Dated this 29th day of April 1899.

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WHITE & WOODINGTON,
Birkbeck Bank Chambers, Southampton Buildings, London, Agents.



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Fig. 2.

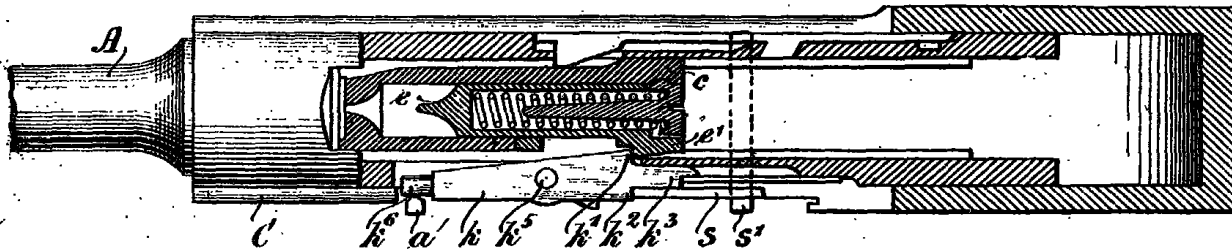


Fig.1.

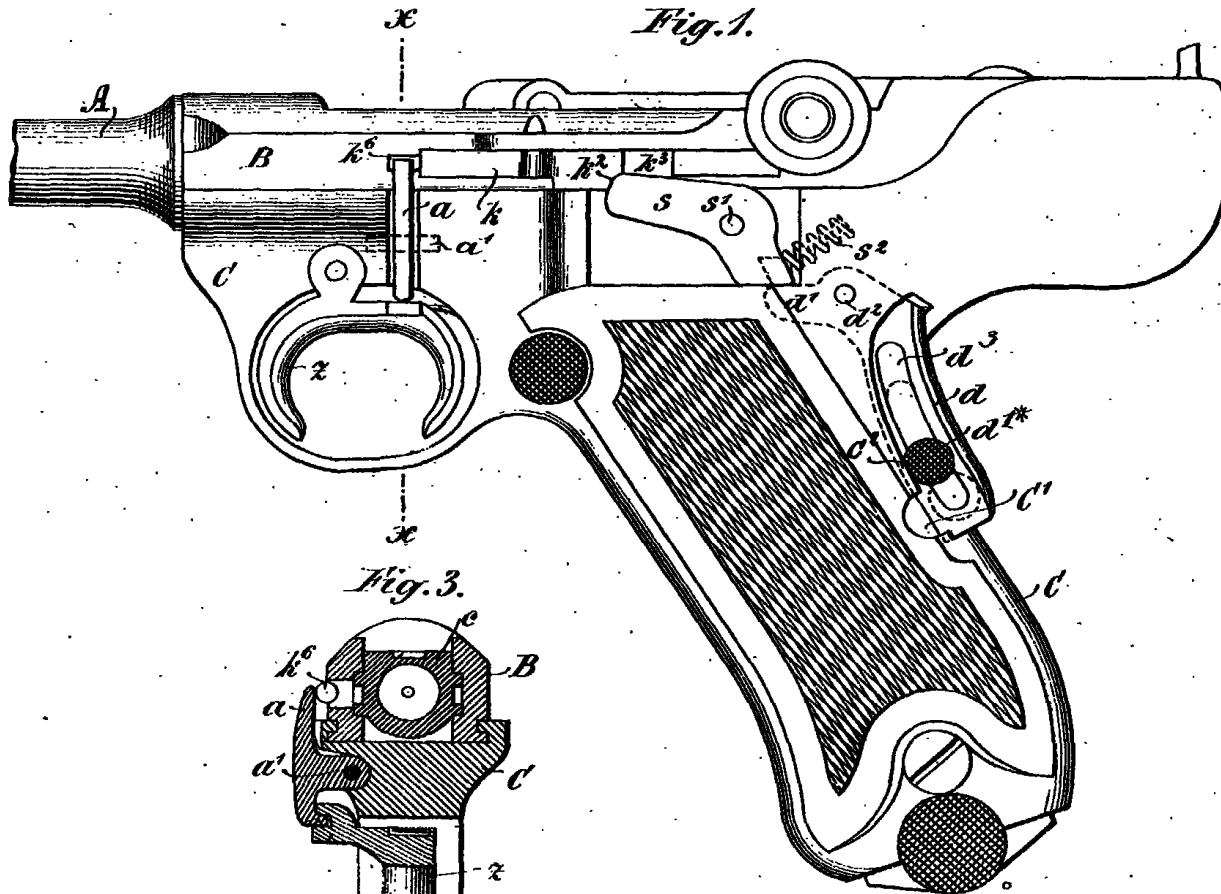


Fig. 3.

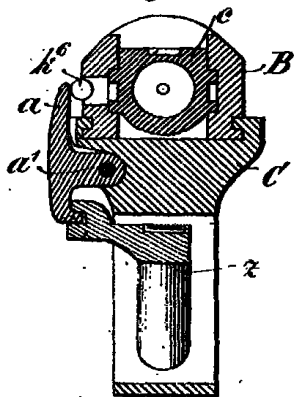


Fig. 5.

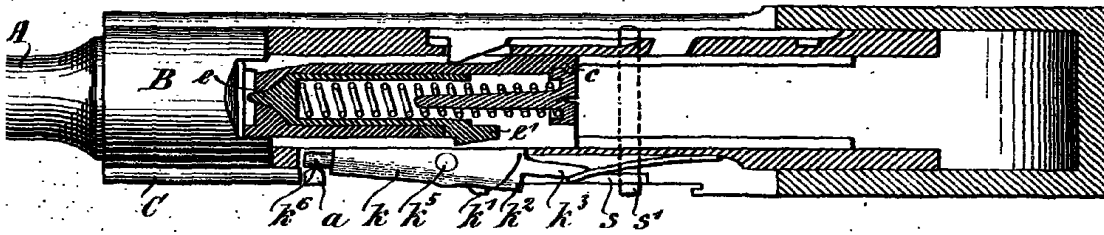


Fig. 4.

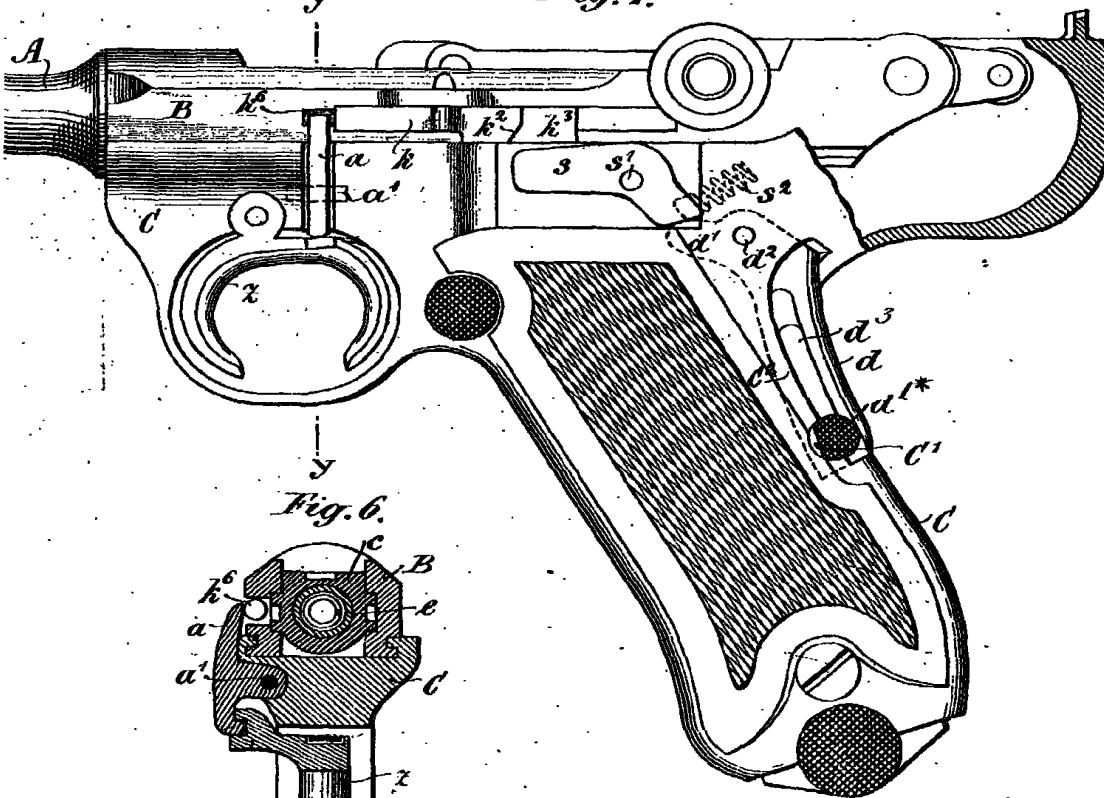
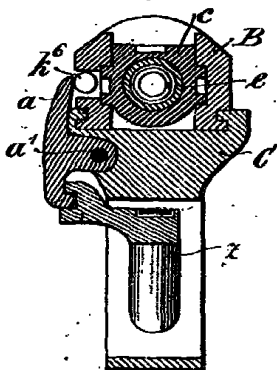
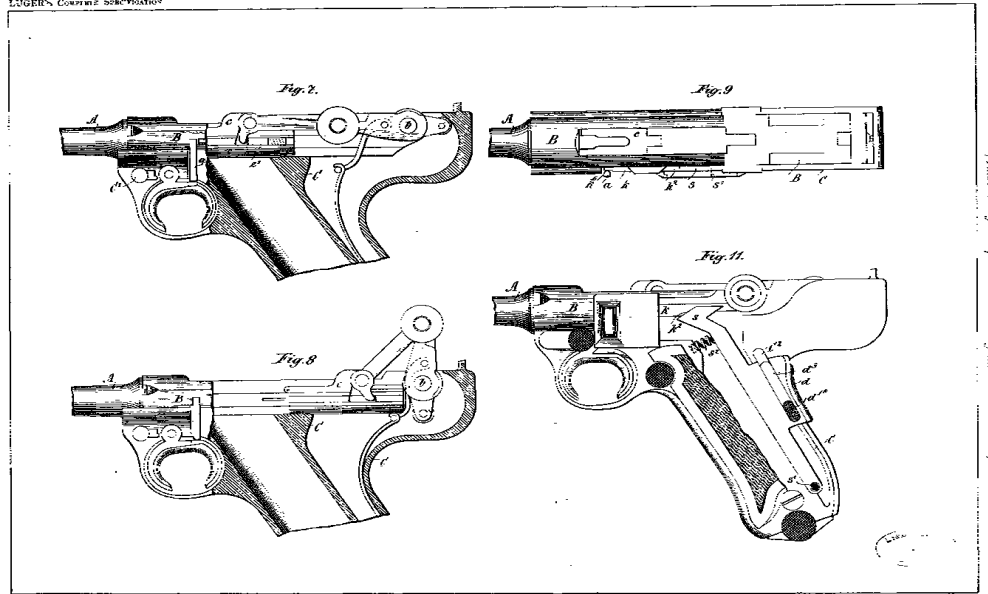


Fig. 6.



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Fig. 7.

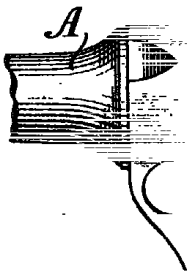
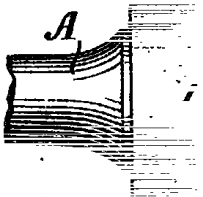
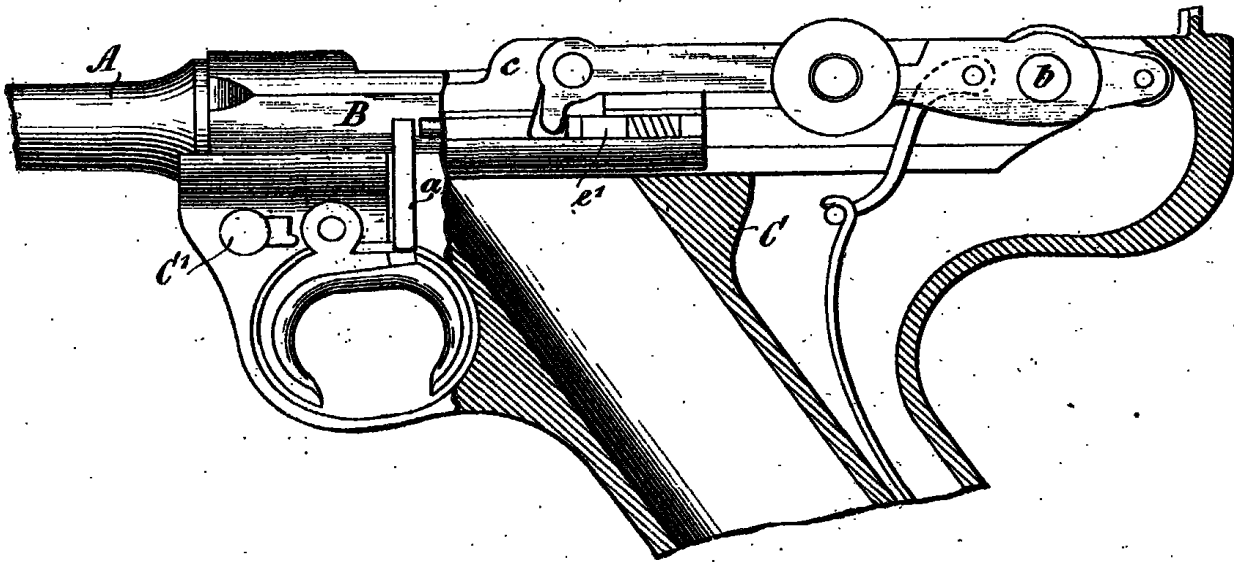


Fig. 8.

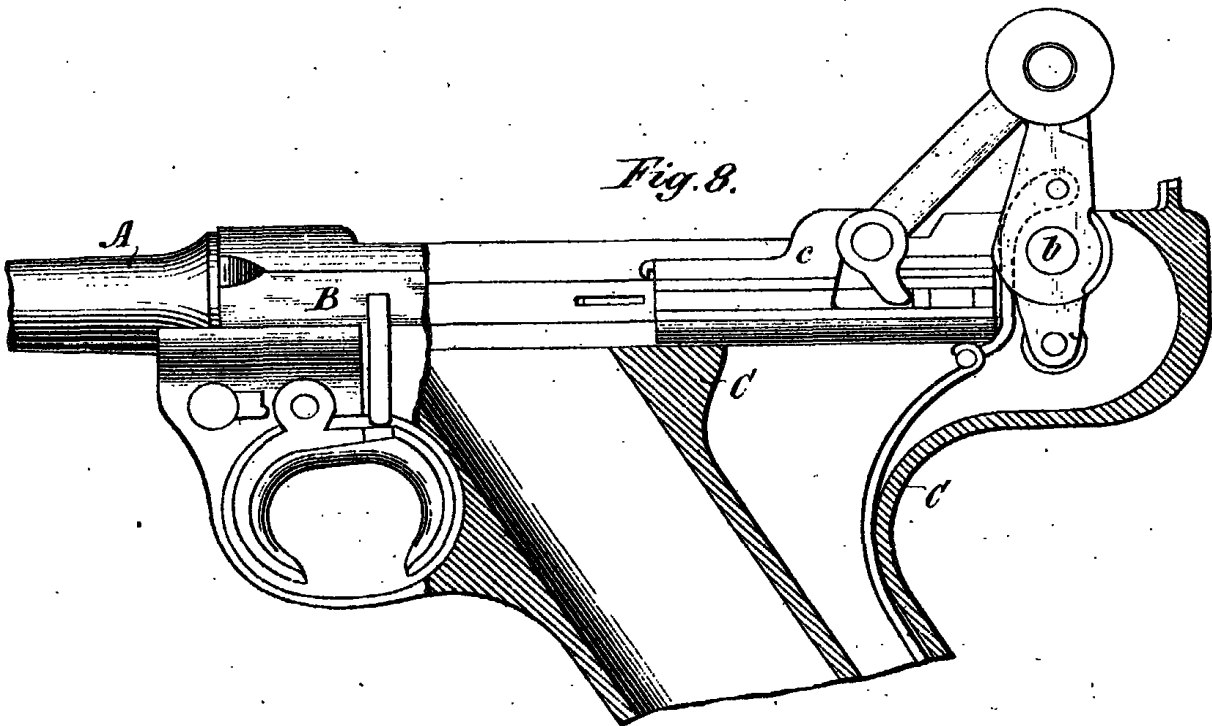


Fig. 9.

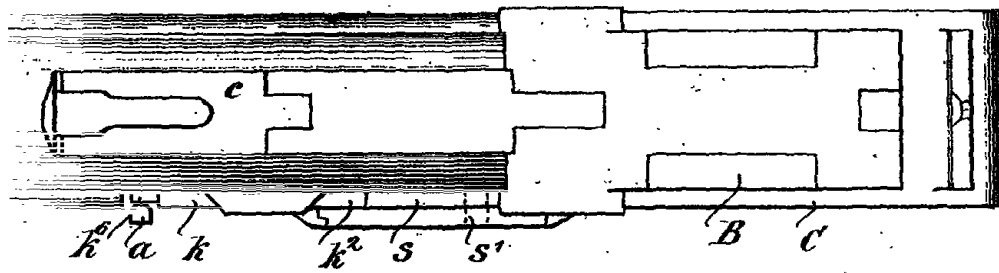
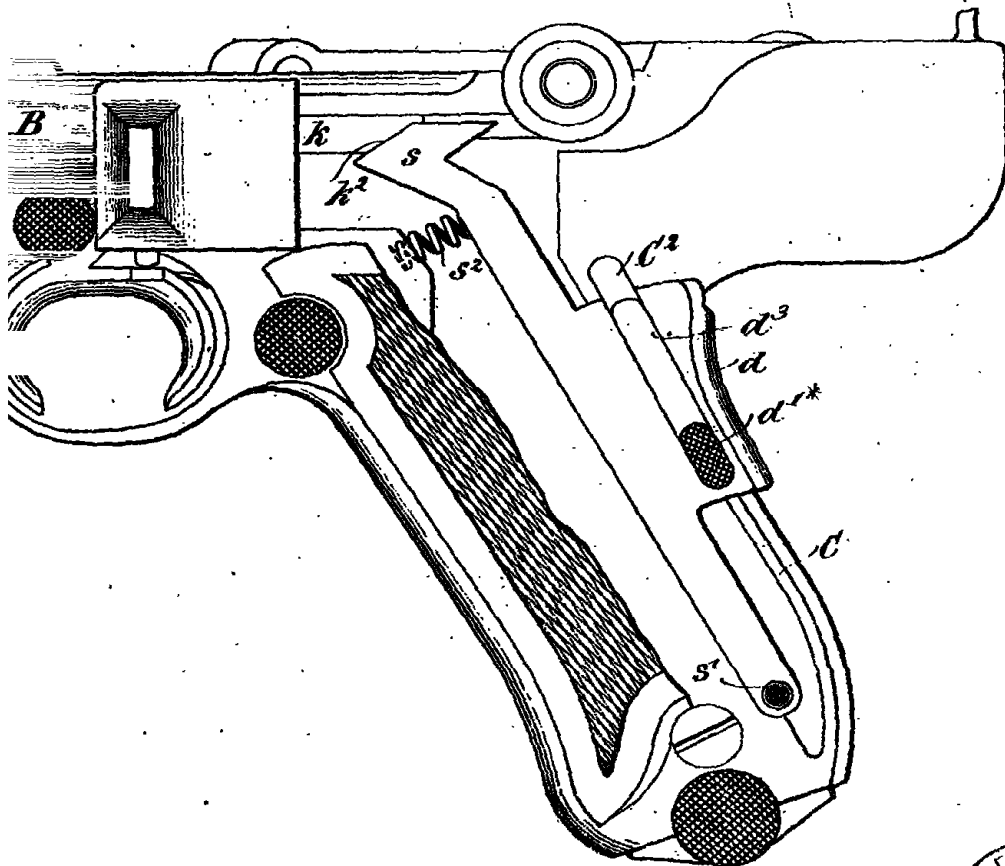
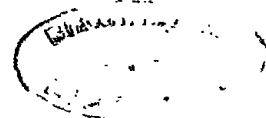


Fig. 11.



[This Drawing is a reproduction of the Original on a reduced scale.]





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