No. 639,414. Patented Dec. 19, 1899.

G. LUGER.

SAFETY DEVICE FOR FIREARMS.

(Application filed Apr. 29, 1899.)

(No Model.) 4 Sheets—Sheet 1.

Fig. 2.

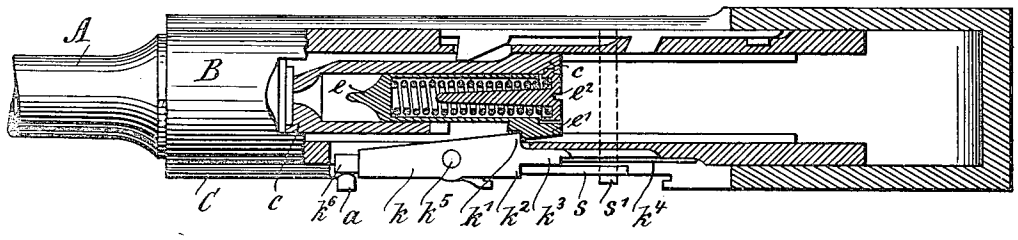


Fig. 1.

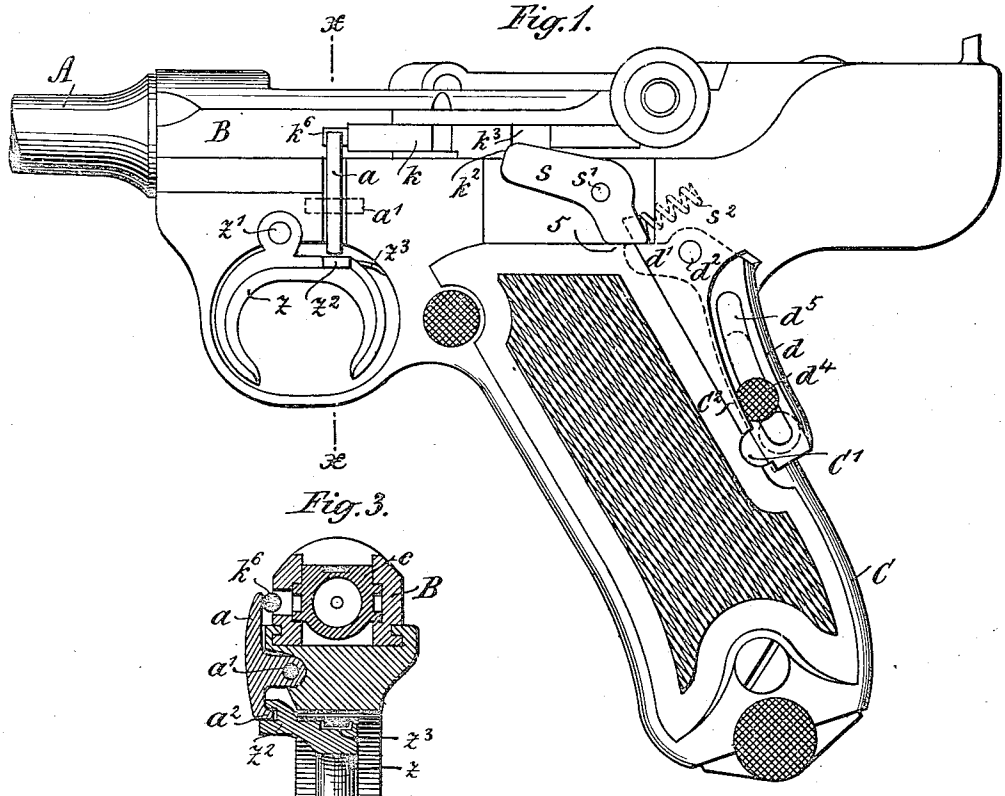
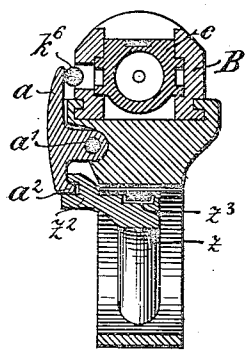


Fig. 3.



Witnesses.
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(No Model.) 4 Sheets—Sheet 2.

Fig. 5.

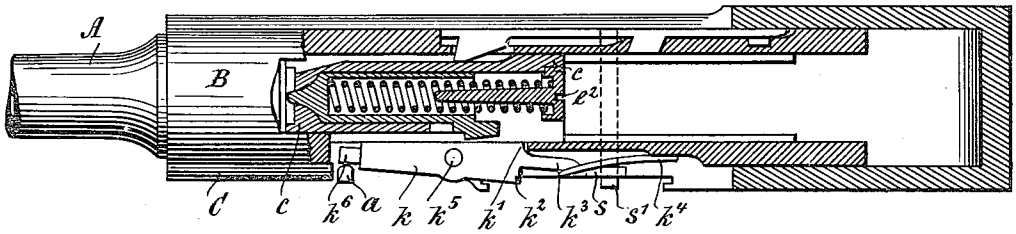

Fig. 4.

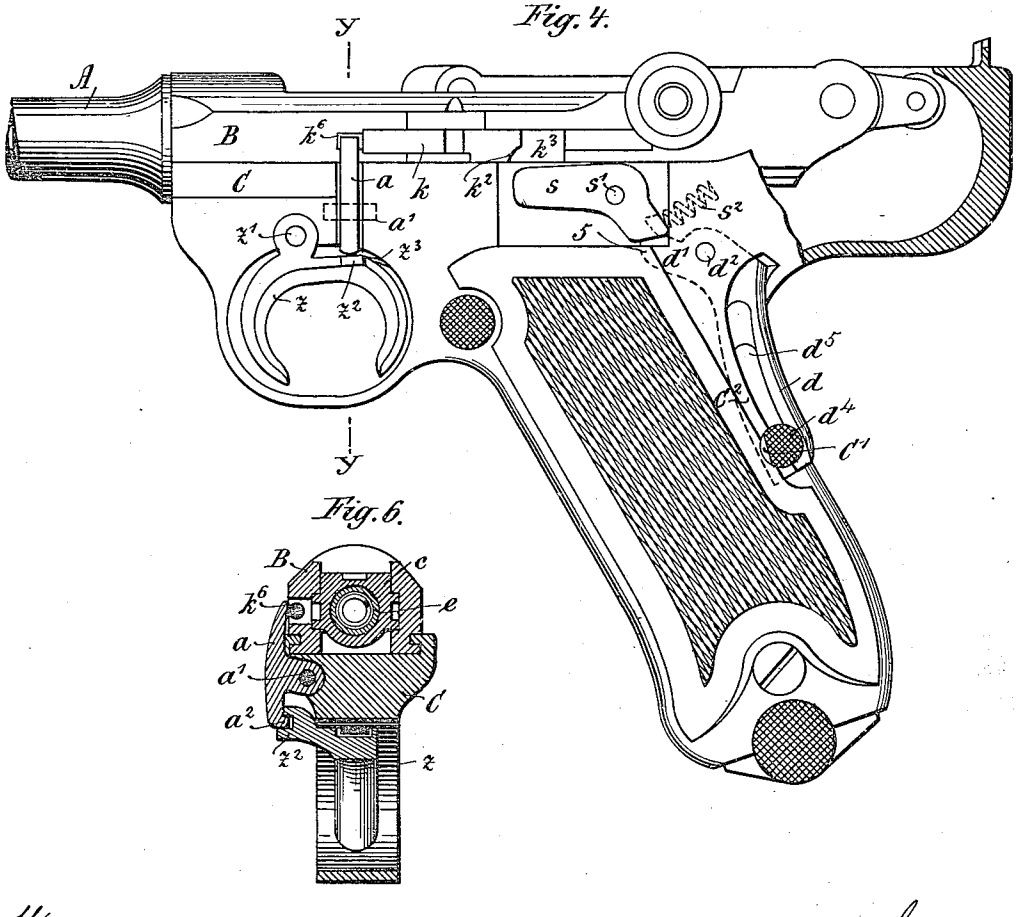

Fig. 6.

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(No Model.) 4 Sheets—Sheet 3.

Fig. 7.

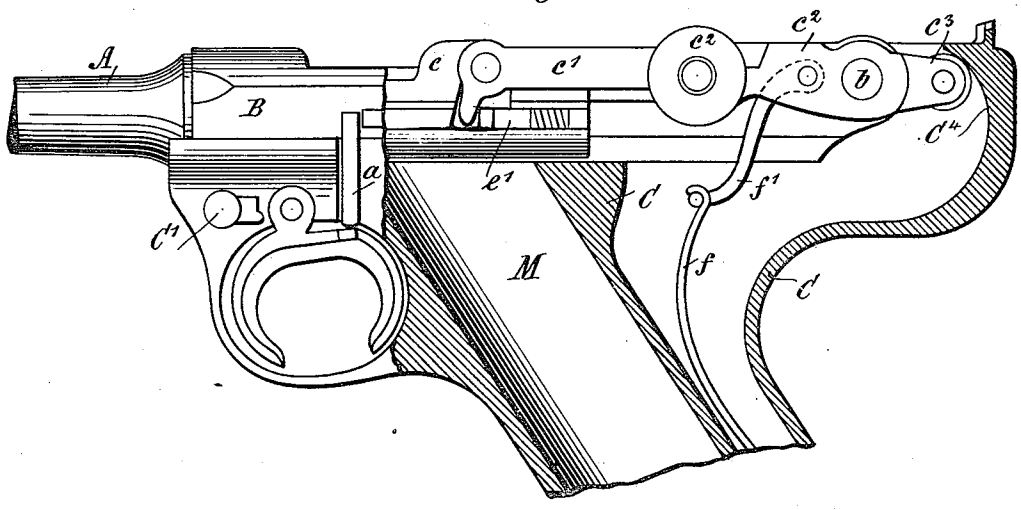
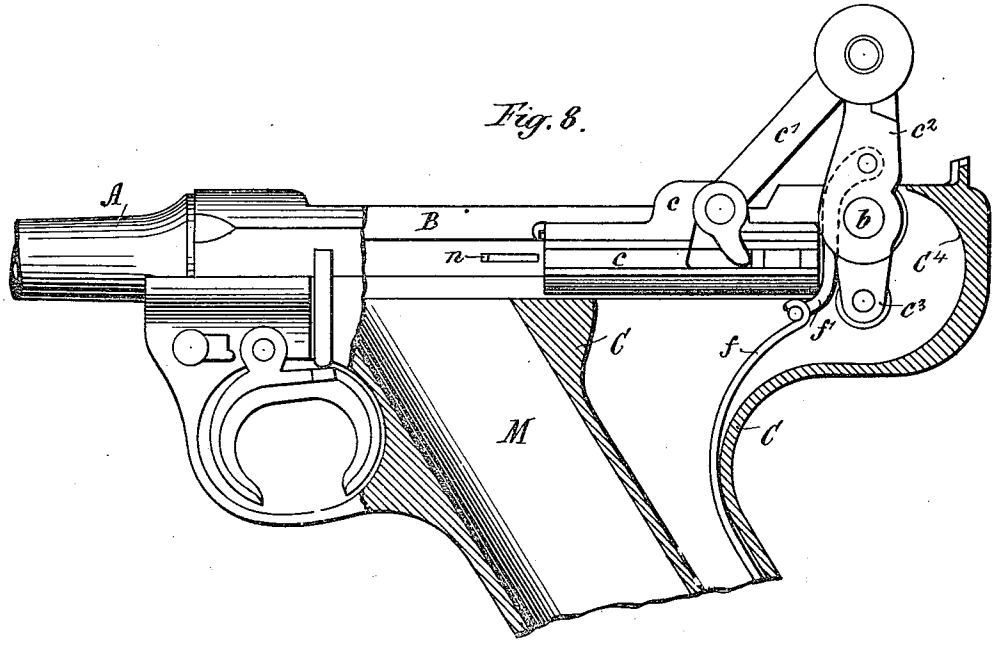


Fig. 8.



Witnesses.
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(No Model.) 4 Sheets—Sheet 4.

Fig. 10.

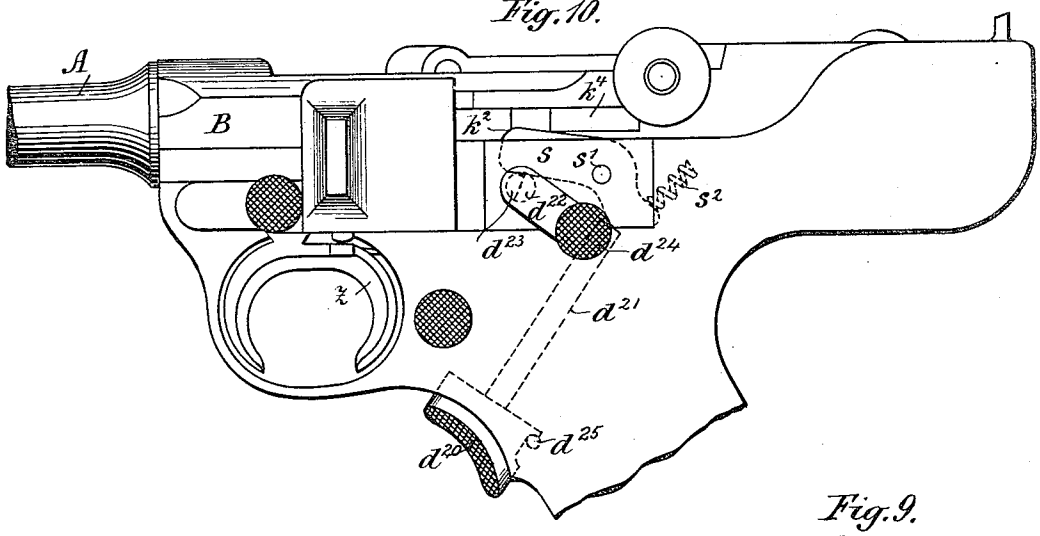
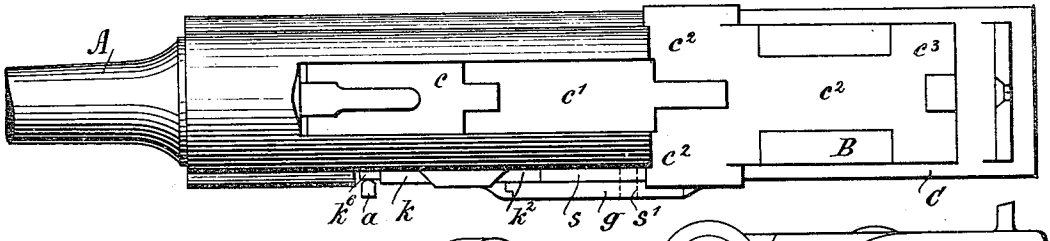


Fig. 9.



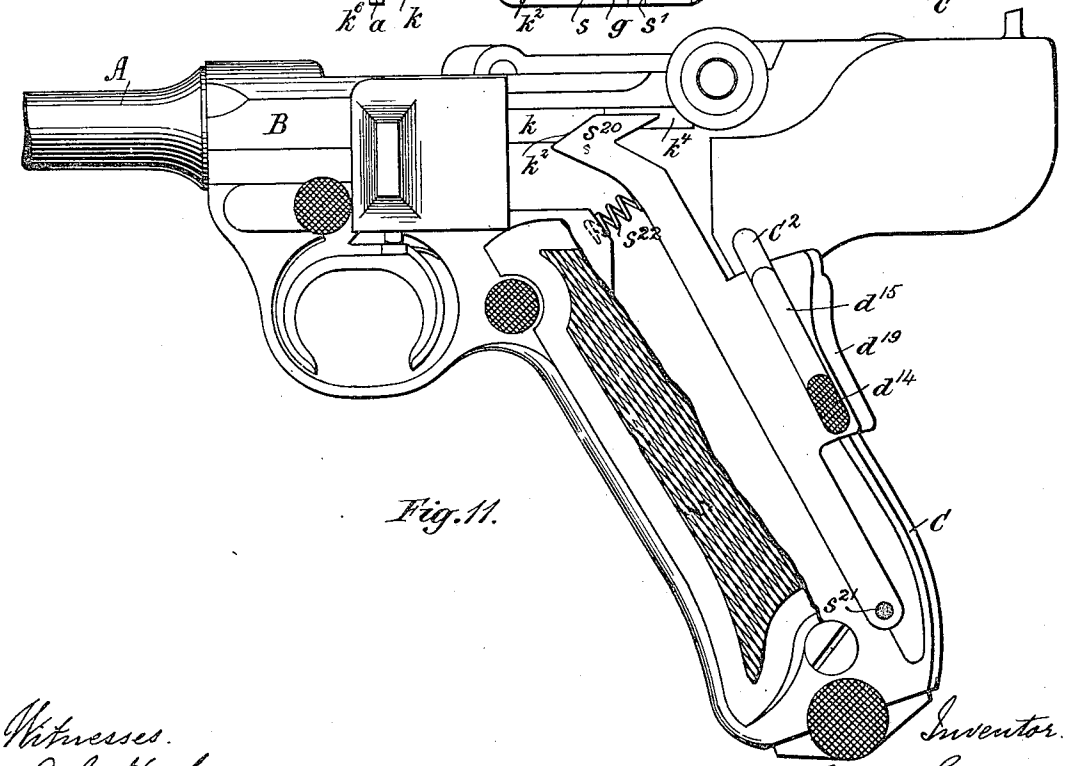


Fig. 11.

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UNITED STATES PATENT OFFICE.

GEORG LUGER, OF CHARLOTTENBURG, GERMANY.

SAFETY DEVICE FOR FIREARMS.

SPECIFICATION forming part of Letters Patent No. 639,414, dated December 19, 1899.

Application filed April 29, 1899. Serial No. 714,983 (No model.)

To all whom it may concern:

Be it known that I, GEORG LUGER, engineer, a subject of the Emperor of Germany, residing at Charlottenburg, in the Empire of Germany, have invented certain new and useful Improvements in or Connected with Breech-Loading Firearms, of which the following is a specification.

The object of this invention is to render more reliable and simple the manipulation of breech-loading firearms 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 position, or, in other words, rigidly connected with the weapon, except when it is being fired; while, on the other hand, with a view to insure 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 firearm, without their disengagement necessitating any special movement of the hand, which in the case of breech-loading guns is a point of importance, inasmuch as this class of firearms, in order to be capable of fully effecting their object, must, first, 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 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 firearms of any other type, are shown in the accompanying drawings, in which like parts are indicated by similar letters of reference.

Referring to the 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. Fig. 2 is an axial horizontal section of the same. Fig. 3 is a transverse section taken on the line $x\,x$ of Fig. 1 looking toward the left. Fig. 4 is a view similar to Fig. 1, but with the locking devices supposed to have been brought to the inoperative position and the arm having been fised. Fig. 5 is an axial horizontal section of Fig. 4. Fig. 6 is a transverse section taken on the line $y\,y$ of Fig. 4 looking toward the left. Figs. 7 and 8 are supplementary diagrammatic figures corresponding with Fig. 4 and illustrating the position of the parts while the breech is being opened by the recoil. Fig. 9 is a top view or plan of the breech when closed. Figs. 10 and 11 show similar forms of mechanism, but with a slightly-modified arrangement of the automatic catch.

As is usual in breech-loading firearms, 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 butt or 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, pivoted at s'. 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 Fig. 1. The lower part of the catch is pivoted on the pin s', and the portion of the catch in front of the said pivot-pin projects forwardly and upwardly. The barrel cannot be moved rearward, as it cannot turn the catch s downward on its pivot, and the front or upper end por-

tion of the catch must be depressed out of the path of the barrel before the barrel can be moved rearwardly.

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 Figs. 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' 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, Fig. 4, so that the socket or sleeve B, movable with the barrel A, becomes free to slide back when the pistol is discharged. 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 sear k, which holds the firing-pin e in the cocked position of the weapon by engaging by its catch k' the shoulder e', and thereby resisting 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, transmits such pressure to the pin or stud k^6 of the sear k, which is here adapted to oscillate horizontally. 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 Figs. 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 Figs. 1 and 4, there is arranged in a convenient position a button or stud d^4, which, together with the trailing spring d^5, 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. A recess C′ is provided in the butt or handle C of the weapon, into which the stud d^4 is adapted to enter whenever it comes to be situated opposite such recess. Now, as shown in Fig. 1, when the stud d^4 is situated above the recess C′ of the butt or handle C the releasing-lever d cannot be pressed inward, no matter 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, cannot be moved, so that the breech-arresting effect, which would in any case be produced automatically, may be additionally insured by the stud or button d^4 being specially moved for the 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. Upon moving the button d^4 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 Fig. 4, when both the barrel and trigger will recover their freedom of movement.

In the form of mechanism shown in Fig. 10 the finger-piece d^{20}, 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^{20} is pressed inward with the fingers, when by means of the rod d^{21} 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^{22} of a lever carrying the stud d^{24} is here formed with a notch d^{23}, extending half-way across its diameter and so arranged that in the position of the parts depicted in this figure the said catch or locking device s comes to be located upon the solid part of said lever-spindle d^{22} and is thereby rendered stationary, while upon turning the lever by its button d^{24} in a forward direction, so as to bring the notch or releasing portion d^{23} 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 of the barrel and trigger. The button or stud d^{24} is secured in the proper positions by spring action.

In the modification shown in Fig. 11 for the purpose of avoiding the necessity of having too many parts in the mechanism the locking device or catch s^{20} is made integral with the releasing lever or finger-piece d^{19}. This part of the mechanism at its lower end, within the pistol-butt, is pivoted at s^{21}, and one end thereof extends up to the breech, where under suitable spring-pressure s^{22} it is held in engagement with the sear k, while 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 Figs. 1 and 4. The arrangement here adopted in connection with the releasing device d^{19}, which serves whenever required for further securing the entire mechanism of the lock or catch s^{20} in its locked position, is also simi-

lar—that is to say, by moving the button or stud d^{14} upward its spring d^{15} is caused to engage with the undercut or recessed portion C^2 of the case C, and thus any forward movement of the releasing device d^{10} is prevented.

What I claim is—

1. In a firearm, the combination, with a slidable barrel, and firing mechanism; of a pivoted catch which when in its normal position locks the firing mechanism and also prevents the barrel from being moved rearwardly, and a stop which prevents the said catch from being moved by the barrel, substantially as set forth.

2. In a firearm, the combination, with a slidable barrel, and firing mechanism; of a pivoted catch which when in its normal position locks the firing mechanism and also prevents the barrel from being moved rearwardly, a stop which prevents the said catch from being moved by the barrel, and a releasing-piece projecting from the butt so that the catch is retracted when the butt is grasped, substantially as set forth.

3. In a firearm, the combination, with a butt, a barrel slidable longitudinally of the butt, a firing-trigger carried by the butt, and a pivoted sear sliding with the said barrel and operated from the said trigger; of a pivoted catch carried by the butt and normally preventing the sear from being moved rearwardly and from being turned on its pivot, substantially as set forth.

4. In a firearm, the combination, with a slidable barrel, and firing mechanism; of a pivoted catch which when in its normal position locks the firing mechanism and also prevents the barrel from being moved rearwardly, a stop which prevents the said catch from being moved by the barrel, means for operating the said catch, and a locking device for securing the said parts, substantially as set forth.

5. In a firearm, the combination, with a barrel slidable rearwardly in the butt, and firing mechanism carried by the butt; of a pivoted catch carried by the butt and provided with a projecting portion which locks the firing mechanism and barrel and prevents the barrel from being slid rearwardly when the said catch is in its normal position, said catch operating to release both firing mechanism and barrel when retracted, and a stop which prevents the said projection from being moved rearwardly by the barrel, substantially as set forth.

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

GEORG LUGER.

Witnesses:
WOLDEMAR HAUPT,
HENRY HASPER.