No. 675,999. Patented June 11, 1901.

L. HELLFRITZSCH.

AUTOMATIC SMALL ARM.

(Application filed Oct. 30, 1899.

(No Model.) 2 Sheets—Sheet 1.

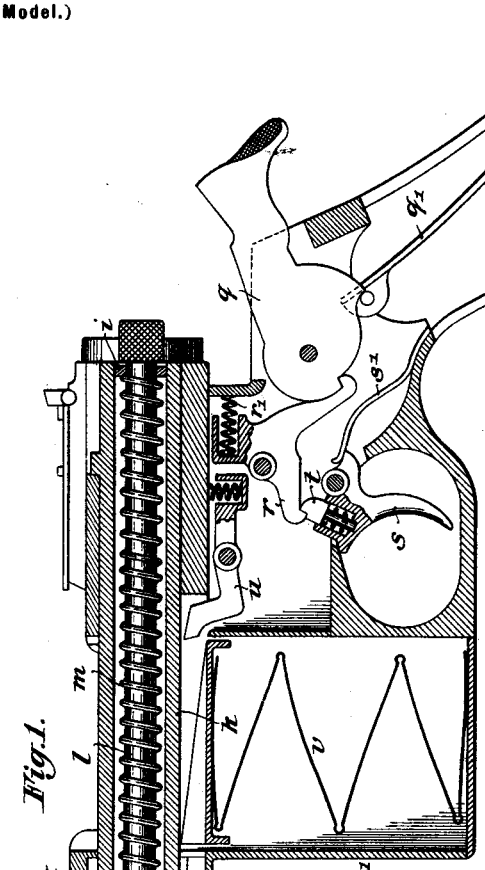

Fig. 1.

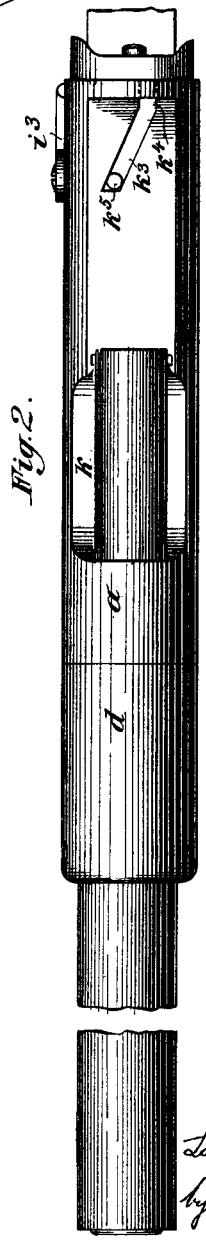

Fig. 2.

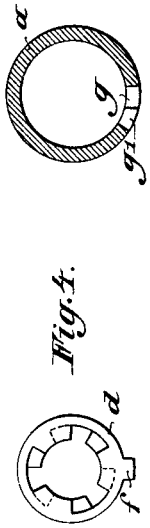

Fig. 3.

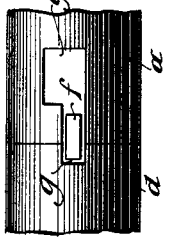

Fig. 4.

Fig. 5.

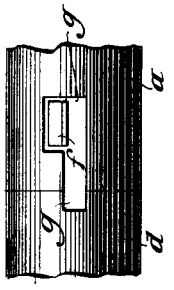

Fig. 6.

Witnesses:
Hamgg Boon
Walter Allen

Inventor.
Louis Hellfritzsch.
by Herbert W. Jenner.
Attorney.

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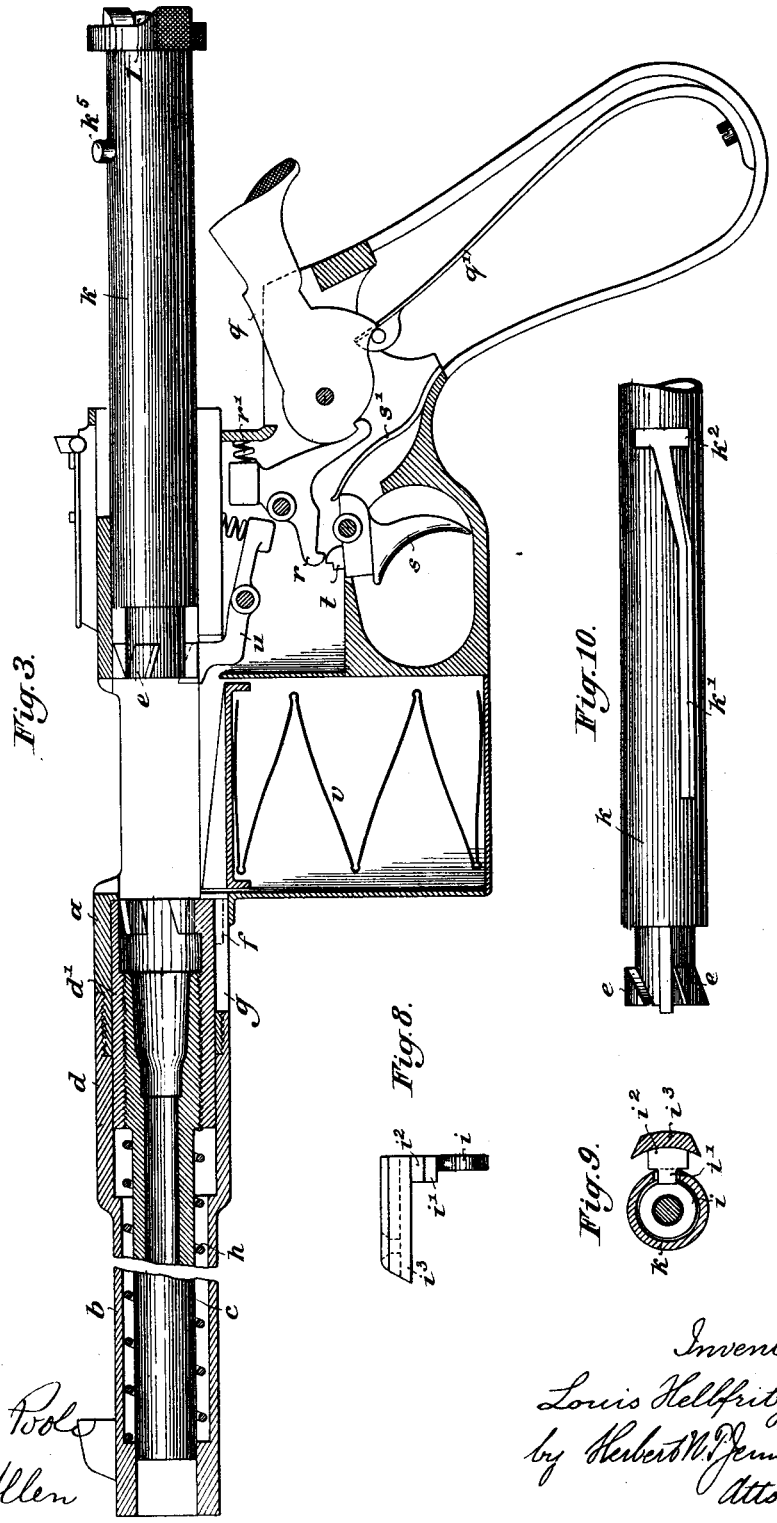

Fig. 3.

Fig. 10.

Fig. 8.

Fig. 9.

Witnesses.
J. Snyder Pool
Walter Allen

Inventor.
Louis Hellfritzsch.
by Herbert M. Jenner.
Attorney.

UNITED STATES PATENT OFFICE.

LOUIS HELLFRITZSCH, OF BERLIN, GERMANY.

AUTOMATIC SMALL-ARM.

SPECIFICATION forming part of Letters Patent No. 675,999, dated June 11, 1901.

Application filed October 30, 1899. Serial No. 735,269. (No model.)

To all whom it may concern:

Be it known that I, LOUIS HELLFRITZSCH, gunsmith, a subject of the King of Prussia, Emperor of Germany, residing at Tempelkofer-Ufer 10, Berlin, Kingdom of Prussia, German Empire, have invented certain new and useful Improvements in Automatic Small-Arms; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The object of this invention is to construct an automatic small-arm in which the barrel, as well as the breech-bolt, is mounted so as to move axially in a straight guide and also to turn on its own axis in such a manner that upon being fired the barrel at first moves backward a short distance in a straight guide, while the breech-bolt turns and with its oblique locking-nipples partially emerges from the corresponding obliquely-placed locking-groove of the barrel-casing, then secured against further turning slides farther in a straight guide, while at the same time the barrel emerges from its straight guide and is turned by the nipples, which now completely unlock it, while the backward movement proceeds in a straight line, and for the purpose of being locked in the open position is swung with a catch into a side recess. In this manner the locking-nipples act as the means for the locking of the barrel, so that the special constructional parts otherwise employed for this purpose are dispensed with.

In Figures 1 to 8 of the accompanying drawings a pistol is illustrated as an example of this kind of self-loading small-arm. Fig. 1 is a longitudinal section of the new pistol in the position ready for firing. Fig. 2 is a plan of part of Fig. 1 after removal of the sights. Fig. 3 is a longitudinal view, partly in section, of a pistol which has just been discharged, the barrel and breech-bolt being in the backward position. Fig. 4 is a rear view of the barrel-casing; Fig. 5, a cross-section of the front part of the breech-casing seen from behind. Figs. 6 and 7 illustrate the method of locking the barrel. Figs. 8, 9, and 10 show the arrangement for guiding the breech-bolt.

The stationary breech-casing a is provided with a screw-threaded portion at its front end, which engages with the enlarged part d of the barrel-casing b. The barrel c is arranged in the casing b and has a tubular end portion d' screwed on it, which is slidable in the part d. The casing a has a longitudinal slot g, provided with an offset portion g' on one side, and the part d' of the barrel has a lug f, which slides in the slot g and engages with its offset portion when the barrel is partially revolved. A spring h encircles the barrel and presses it rearwardly, thereby preventing it from sliding forward in its casing prematurely when disconnected from the breech-bolt. The breech-bolt k is provided with oblique locking-nipples e, which engage with similar recesses in the end portion of the barrel. The firing-pin l is arranged inside the breech-bolt and is surrounded by the closing-spring m, which forces the breech-bolt forward in the casing a. The spring m is stronger than the spring h. An abutment-ring i is provided for the spring m to bear against. This ring has a plate i^3, which is secured to the casing a. The breech-bolt k has a longitudinal slot k', the rear end portion k^2 of which is oblique. The slot k' engages with the narrow guide portion i' of the stem i^2, which connects the ring i with the plate i^3. An oblique slot k^3 is formed in the upper part of the casing a, and this slot terminates in a longitudinal opening or orifice k^4. A pin k^5 projects from the breech-bolt and engages with the said slot.

The remaining parts of the firearm are of approved construction. The hammer q has an operating-spring q'. The trigger s has a spring-operated catch t, which engages with the sear r, which is controlled by the spring r'. A spring s' is provided for controlling the trigger. A magazine v for the cartridges is provided and a cartridge-ejector u, and these parts are arranged as shown.

Fig. 1 shows the parts in the firing position. When the cartridge is exploded, it drives the barrel and the breech-bolt rearwardly against the pressure of the spring m. During the first part of the recoil the breech-bolt is partially revolved by the slot k^3, and the barrel is prevented from revolving by the slot g until its lug f comes opposite the recess g'. About this time the pin k^5 passes out of the opening k^4, and the breech-bolt is prevented

from revolving by the slot k'. The oblique nipples e now partially revolve the barrel as they are disengaged from it by the continued rearward motion of the breech-bolt, and the lug f enters the recess g', so that the barrel is locked in its rearward position. The spring h presses the barrel-lug against the end of the recess, so that the barrel is prevented by friction from revolving backward prematurely. A new cartridge is forced upward in front of the breech-bolt as soon as the latter has been driven back far enough. The forward motion of the breech-bolt is effected by the spring m and is the converse of its rearward motion. The breech-bolt is forced forward without being revolved until its oblique nipples have engaged with the barrel and have revolved it forcibly, so that the lug f is out of the recess g'. The pin k^5 then enters the oblique slot k^3, so that the breech-bolt is partially revolved to effect the locking of the nipples e with the barrel while the barrel is prevented from revolving and while both barrel and breech-bolt are moving forward longitudinally.

What I claim is—

1. In a firearm, the combination, with a casing provided with a slot g having an offset portion, and having also an oblique slot k^3; of a slidable and revoluble barrel provided with a locking-lug for engaging with the offset portion of the slot g, a slidable and revoluble breech-bolt having a pin for engaging with the said oblique slot, said barrel and breech-bolt being also connected by oblique locking-nipples at their adjacent ends; and means for preventing the said breech-bolt from revolving on its axis after its said pin emerges from the said oblique slot in the casing, substantially as set forth.

2. In a firearm, the combination, with a casing, a longitudinally-slidable barrel, and a longitudinally-slidable breech-bolt provided with oblique locking-nipples which engage with the barrel; of means for partially revolving the breech-bolt independent of the barrel during the first part of the recoil, and means for arresting the rearward motion of the barrel and permitting it to be partially revolved by the said locking-nipples as the breech-bolt becomes disengaged from it during the subsequent part of the recoil, substantially as set forth.

3. In a firearm, the combination, with a casing provided with a slot having an offset portion, a longitudinally-slidable barrel having a lug which slides in the said slot and engages with the said offset portion when the barrel is partially revolved, and a longitudinally-slidable breech-bolt provided with oblique locking-nipples which engage with the barrel; of means for partially revolving the breech-bolt independent of the barrel during the first part of the recoil, thereby unlocking the said nipples from the barrel and permitting them to partially revolve the barrel as they become disengaged from it during the subsequent part of the recoil, substantially as set forth.

4. In a firearm, the combination, with a casing provided with a slot having an offset portion, and a slidable and revoluble barrel provided with a lug which engages with the said slot and its offset portion, and a spring which presses the said barrel rearwardly and prevents its lug from leaving the said offset portion of the slot prematurely, substantially as set forth.

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

LOUIS HELLFRITZSCH.

Witnesses:

WOLDEMAR HAUPT,

WILLIAM MAYNER.