K. HEINEMANN

AUTOMATIC GUN.

APPLICATION FILED FEB. 8, 1912.

1,045,549.

Patented Nov. 26, 1912.

Fig. 1.

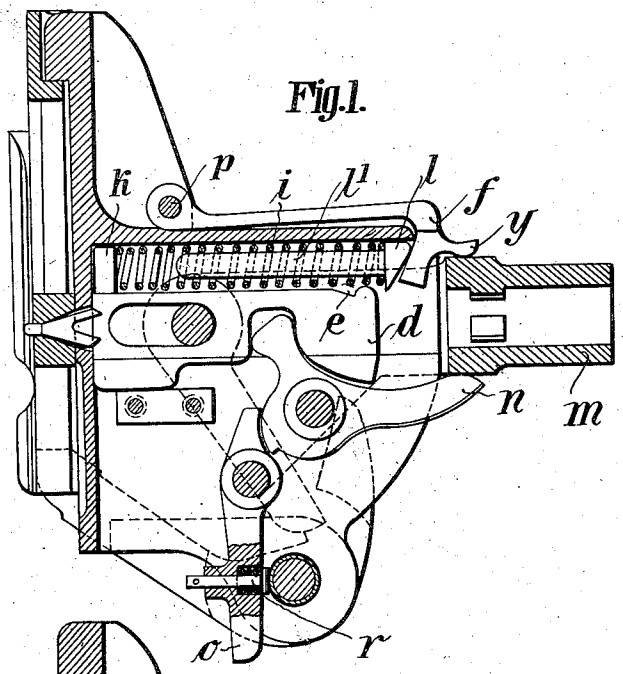
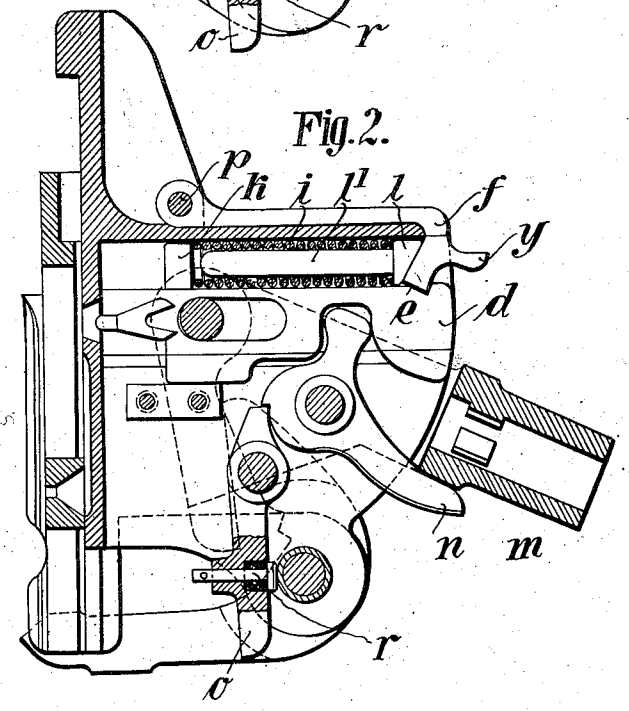


Fig. 2.



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AUTOMATIC GUN.

1,045,549. Specification of Letters Patent. Patented Nov. 26, 1912.

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To all whom it may concern:

Be it known that I, KARL HEINEMANN, a citizen of the German Empire, residing at Berlin, in the Kingdom of Prussia, Germany, have invented certain new and useful Improvements in Automatic Guns; 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.

My invention relates to improvements in automatic guns, and more particularly in automatic guns of the Maxim type. In guns of this class such as are now in use the firing pin and the tumbler coöperating therewith are acted upon by the same spring which for this purpose has two branches. This spring is subject to breakage after continued use, and if broken it can but difficultly be replaced by a new spring.

The object of the improvements is to construct the mechanism controlling the operation of the firing pin in such a way, that the spring of the firing pin is not in the same degree subject to breakage and can when broken easily be replaced by a new one without the use of special tools. And with this object in view my invention consists in providing a coiled spring which is common to the firing pin and the safety sear, and disposing the said spring between a nose of the firing pin and the end of the safety sear, so that after removing the bolt of the safety sear and slightly depressing the breech block the safety sear and the spring can be removed and replaced by new parts.

In order that my invention be more clearly understood an example embodying the same has been shown in the accompanying drawing in which the same letters of reference have been used in all the views to indicate corresponding parts.

In said drawings—Figure 1, is a vertical longitudinal section of the casing of the breech block and the parts mounted thereon, the parts being shown in the closed breech position, and Fig. 2, is a similar section showing the parts in the open breech position.

Referring to the example illustrated in the drawings, the hand sear *o* is equipped with a small spring *r* of its own. For operating the firing pin *d* a coiled spring *i* is provided which bears with one of its ends on a nose *k* secured to or made integral with the firing pin. At the opposite end a pin *l'* is embedded in the coiled spring, which pin is formed with a head *l* having a beveled front face. At the outside of the breech block casing a safety sear *f* is located which is pivoted to the casing at *p*. The free end of the sear is bent downward and forward and into position for engagement with a notch *e* of the firing pin. It is engaged by the beveled head *l* of the pin *l'*, the latter having the tendency to hold the sear downward and in engagement with the safety pin.

In Fig. 1 the parts have been shown in the closed breech position. The breech block toggle lever *m* has been rocked upward and has disengaged the safety sear from the firing pin by engaging a nose *y*. The tumbler *n* has been released by the hand sear *o*, and the firing pin has been thrown forward.

In Fig. 2 I have shown the parts in the position which they have prior to firing. The breech block toggle lever *m* has been rocked downward, the tumbler *n* is locked by the hand sear, and the safety sear engages the notch *e* of the firing pin by being pulled downward by the spring actuated head *l* engaging with its beveled face the inclined end of the safety sear. At this time the breech block toggle lever *m* has disengaged the nose *y* of the safety sear.

I claim herein as my invention:

1. In a firing mechanism for automatic guns, the combination with the firing pin, of a safety sear, a spring common to said firing pin and safety sear and arranged to operate the firing pin and to hold the safety sear in locking position, means to lock said firing pin in position ready for firing, and means to throw said safety sear and locking means out of operation.

2. In a firing mechanism for automatic guns, the combination with the firing pin, of a safety sear, a coiled spring common to said firing pin and safety sear and arranged to operate the firing pin and to hold the safety sear in locking position, means to

lock said firing pin in position ready for firing, and means to throw said safety sear and locking means out of operation.

3. In a firing mechanism for automatic guns, the combination with the firing pin, of a safety sear, a resilient means common to said firing pin and safety sear and arranged to operate said firing pin and to hold the safety sear in locking position, said safety sear being provided with a shoulder acted on by said resilient means and having its face inclined relatively to the direction of the force exerted by the resilient means, means to lock said firing pin in position ready for firing, and means to throw said safety sear and locking means out of operation.

4. In a firing mechanism for automatic guns, the combination with the firing pin, of a safety sear, a coiled spring common to said firing pin and safety sear and arranged to operate said firing pin, a block mounted on said spring and having its face inclined relatively to the axis of the spring, said sear having a shoulder engaged by said block and inclined accordingly and adapted in combination with said block to hold the sear in locking engagement with the firing pin, means to lock said firing pin in position ready for firing, and means to throw said safety sear and locking means out of operation.

5. In a firing mechanism for automatic guns, the combination with the breech block, and means to move the same into position for opening and closing the breech, of a firing pin, its operating mechanism, a safety sear, and a spring common to said firing pin and safety sear and arranged to throw the firing pin and to hold the safety sear in locking engagement with the firing pin, said safety sear being so positioned relatively to the breech block operating means as to be thrown out of locking position when the breech block arrives in breech closing position.

6. In a firing mechanism for automatic guns, the combination with the breech block, and means to move the same into breech opening and closing position, of a firing pin, its operating mechanism, a safety sear, and a spring common to said firing pin and safety sear and arranged to throw the firing pin and to hold the safety sear in locking engagement with the firing pin, said safety sear having a nose projecting into the path of said breech block operating means and adapted in combination with the breech block operating means to throw said sear into non-locking position upon the arrival of the breech block in breech closing position.

7. In a firing mechanism for automatic guns, the combination of a breech block, a firing pin within said breech block and provided with a recess, a safety sear arranged to enter said recess and lock said firing pin against operation, a projection on said safety sear, resilient means common to said firing pin and safety sear arranged to operate said firing pin and to hold said safety sear in the recess thereof and mechanism for operating the breech block and arranged to engage and support said projection when the breech block is closed whereby the safety sear is moved and maintained out of the recess of the firing pin, said mechanism being movable away from said projection as the breech block is opened to permit the safety sear to be returned to locking position in said recess.

8. In a firing mechanism for automatic guns, the combination with the breech block, comprising a frame or casing open at the rear and bottom, and operating mechanism for said breech block, of a firing pin located within said frame or casing in registry with the axis of the barrel when the breech block is in breech closing position, a safety sear arranged to engage the firing pin at the open end of the casing and in position for being thrown by said breech block operating mechanism into unlocking position, and a spring located within said breech block casing and common to said firing pin and safety sear for throwing the firing pin and holding the safety sear in locking position, said spring acting on the safety sear at the open end of the casing and adapted to be removed toward the rear of the breech block.

9. In a firing mechanism for automatic guns, the combination with the breech block, comprising a frame or casing open at the rear and bottom, and operating mechanism for said breech block, of a firing pin located within said casing in registry with the axis of the barrel when the breech block is in closing position, a safety sear located outside said casing and arranged to engage the firing pin at the open end of the casing and in position for being thrown by said breech block operating mechanism into unlocking position, and a coiled spring located within said breech block casing longitudinally of the firing pin and common to said firing pin and safety sear for throwing the firing pin and holding the safety sear in locking position, said spring acting on the safety sear at the open end of the casing and adapted to be removed toward the rear of the breech block.

10. In a firing mechanism for automatic guns, the combination of a breech block, a firing pin within said breech block, a safety sear arranged to lock said firing pin against operation, resilient means common to said firing pin and safety sear arranged to operate said firing pin and to hold said safety sear in its locking position and mechanism for operating the breech block and arranged

to engage said safety sear when the breech block is closed whereby said safety sear is moved and maintained out of locking position, said mechanism being movable away from said safety sear as the breech block is opened to permit the safety sear to be returned to locking position.

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

KARL HEINEMANN.

Witnesses:
WOLDEMAR HAUPT,
HENRY HASPER.