M. KNÖTGEN.

AUTOMATIC FIREARM.

APPLICATION FILED MAY 2, 1914.

1,114,150

Patented Oct. 20, 1914.

2 SHEETS—SHEET 1.

Fig. 1.

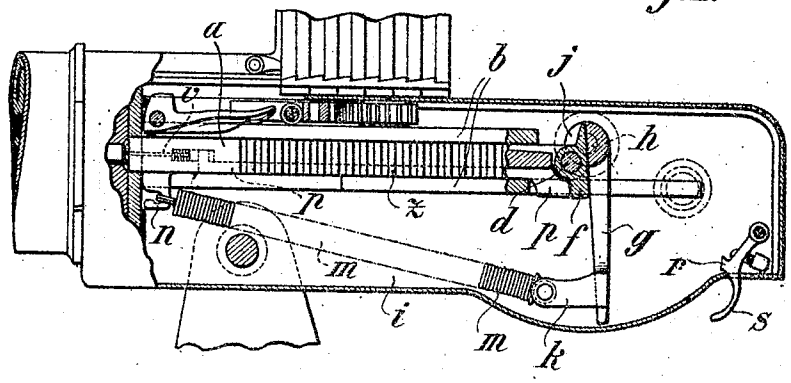


Fig. 2.

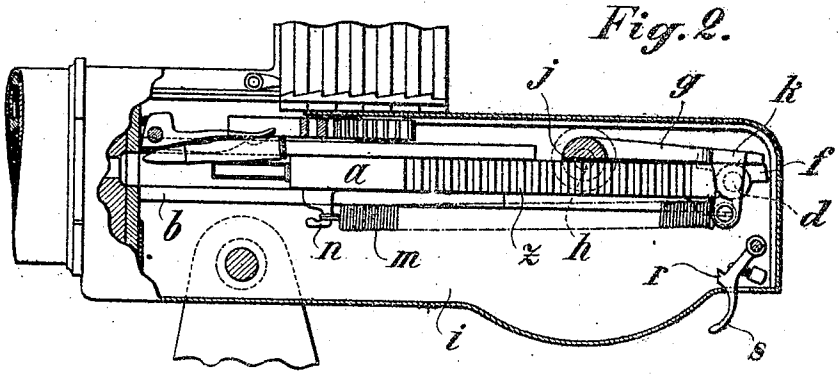


Fig. 4.

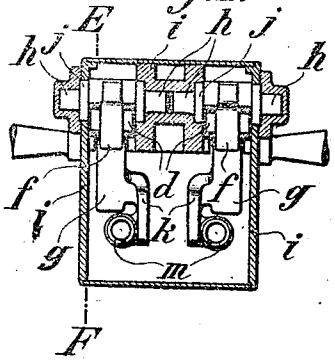
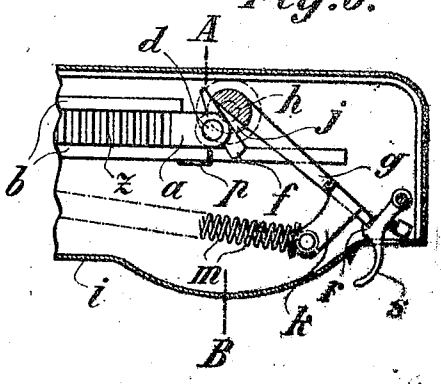


Fig. 3.



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2 SHEETS—SHEET 2.

Fig. 5.

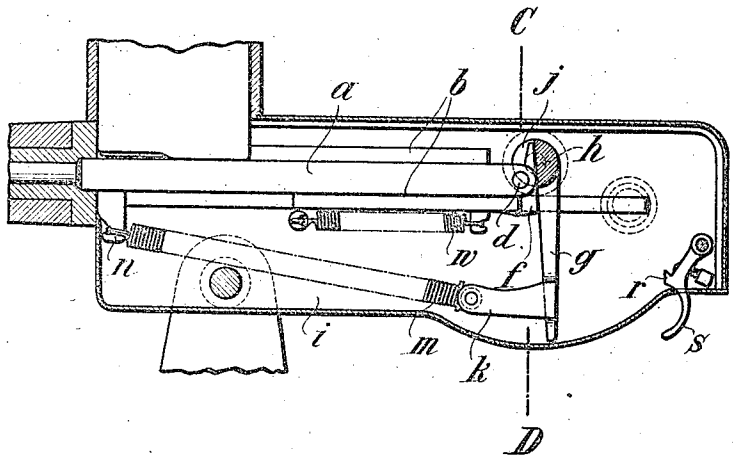
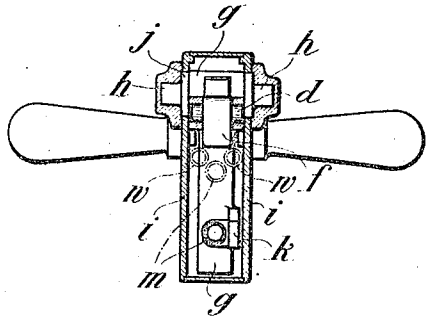


Fig. 6.



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UNITED STATES PATENT OFFICE.

MATHIAS KNÖTGEN, OF COLOGNE, GERMANY, ASSIGNOR TO THE FIRM OF GESELLSCHAFT ZUR VERWERTUNG VON FEUERWAFFEN-PATENTEN M. B. H., OF COLOGNE, GERMANY.

AUTOMATIC FIREARM.

1,114,150. Specification of Letters Patent. Patented Oct. 20, 1914.

Application filed May 2, 1914. Serial No. 835,971.

To all whom it may concern:

Be it known that I, MATHIAS KNÖTGEN, a subject of the German Emperor, and residing at 60 Eifelstrasse, Cologne, Germany, have invented certain new and useful Improvements in Automatic Firearms, of which the following is a description.

The present invention relates to improvements in the firearm according to the U. S. Letters Patent 993,175 and 1,055,759, in which the breech blocks are moved to and fro for a removal of an empty cartridge and insertion of a fresh cartridge, the improvements consisting in the particular arrangement of levers and springs for effecting said movement.

The invention consists in that the breech or percussion lever arranged behind each breech block is coupled to the breech block by a tensile spring, and that to each breech block a pressure block is pivotally fitted, which permanently bears flat against the breech lever, beneath which it will glide during the rebound. This arrangement affords the advantage over the known arrangements, that a tensile spring may be employed which is arranged in a more simple manner, and the connection of which to the breech block need not be loosened at any position of the latter. Owing to the large bearing surface of the pressure block pivoted to the breech block, furthermore, a better distribution of the rebound is insured, so that less wear will occur than if a pressure roller were employed. This pressure block, at the same time, serves as intermediary between the breech lever, which also acts as percussion lever, and the igniting pin, so that it is impossible to fire the arm when the breech or percussion lever is cocked.

In the accompanying drawing the subject matter of the present invention is exemplified.

Figures 1 to 3 are vertical, longitudinal sections on the line E—F in Fig. 4 through a double-barreled firearm at three different positions of the parts, and Fig. 4 is a cross section on the line A—B in Fig. 3. Fig. 5 is a vertical, longitudinal section through the breech of such a firearm with one barrel and Fig. 6 is a cross section on the line C—D in Fig. 5.

The breech blocks *a* are slidably fitted in guides *b* and to their rear ends are fitted the pressure blocks *f* pivotally fitted on pins *d*. Behind each breech block when in closed position, the breech or percussion lever *g* is journaled on the pins *h* in the side walls *i* of the breech chamber. The width of the levers *g* is equal to that of the breech blocks and the pins *h* fitted to the levers have collars *j*, which are likewise journaled in the breech chamber walls *i*, so that the levers are very steadily journaled. The pins *h* of the downward projecting breech levers are journaled a little above the central axis of the breech blocks, so that the rebound of the breech block will act on a very short lever arm. The lower end of each lever *g* carries an arm *k*, to which a tensile spring *m* is attached, the other end of which is engaged in a hook *n* at the front end of the breech block.

In the curved path of the lower end of each breech lever *g* a trigger *s* is provided, which is adapted to hold the lever in a slanting position (Fig. 3). The igniting pin *p* penetrates the breech block longitudinally and projects beyond the rear surface of the latter, where it has a downwardly extending offset portion.

In the double-barreled machine gun (Figs. 1–4) each breech block is advanced by means of a pinion, not shown in the drawing, engaging in the teeth *z* of the breech blocks, turned toward each other, by the rebounding other breech block. If, however, the breech arrangement is employed in single-barreled firearms (Figs. 5, 6), a separate tensile or compression spring *w* will be required, the ends of which are secured to the breech block and the breech chamber, so that it is put under tension when the breech block rebounds, and will return the latter subsequently into closing position by means of its elasticity. The hereinbefore described arrangement of the lever *g* and the spring *m* is, however, also in this case the same.

By the reaction of the powder gases the breech block is driven backward, and the lever *g* is turned on its pivot. The free end of the lever *g* is then at first moved through a longer distance than the breech block. In consequence thereof the spring *m* is put under tension, very quickly at the commencement of the rebound of the breech block and then gradually decreasing in velocity, as the arm *k* rocks first backward and then upward. When the breech lever has been almost completely pressed upward, the breech

block can glide back beneath it (Fig. 2), so that now the hook *n* approaches the arm *k* and the spring *m* is released. The pressure block *f* will turn upward and glide along the underside of the breech lever. By such rebound of the one breech block *a* the other breech block is advanced in the hereinbefore described manner, and when this second breech block is driven back by the reaction of the powder gases, the first breech block will be again brought into closing position. When there is only one breech block, the spring *w* under tension will pull or force the breech block back into closing position. When the breech block thus shoots forward again, the breech lever *g* will follow, as the spring *m* pulls it downward. When the breech block has reached its closing position, the thicker end of the pressure block *f* acting as intermediary is struck against the igniting pin *p*, so that this pin is driven forward, and ignites the cartridge by means of pin *v*. If, however, the breech lever *g* is trapped by the trigger hook *r*, the breech block is returned alone into its closing position (Fig. 3) and the cartridge will be fired, only after the trigger *s* has been pulled, whereby the breech lever *g* is released, so that it can shoot forward and drive the igniting pin forward by means of the pressure block.

I claim:

1. In an automatic firearm, the combination of a breech block adapted to move backward and forward, a pivotally arranged lever, behind the breech block when in closing position the lever-pivot being located slightly beside the longitudinal axis of the breech block, a spring attached to the free end of said lever and to the front end of the breech block.

2. In an automatic firearm, the combination of a breech block adapted to move backward and forward, a pivotally arranged lever, behind the breech block when in closing position the lever-pivot being located slightly beside the longitudinal axis of the breech block, a spring attached to the free end of said lever and to the front end of the breech block, with an intermediate pressure block, pivotally fitted to the breech block, and adapted to bear flat against the breech lever.

3. In an automatic firearm, the combination of a breech block adapted to move backward and forward, a pivotally arranged lever behind the breech block when in closing position the lever-pivot being located slightly beside the longitudinal axis of the breech block, a spring attached to the free end of said lever and to the front end of the breech block, with an intermediate pressure block, pivotally fitted to the breech block, with an igniting pin against which the said lever projects the said intermediate block.

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

MATHIAS KNÖTGEN.

Witnesses:
JUSTUS BROCKECHIM,
LOUIS VANDORY.