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AUTOMATIC FIREARM

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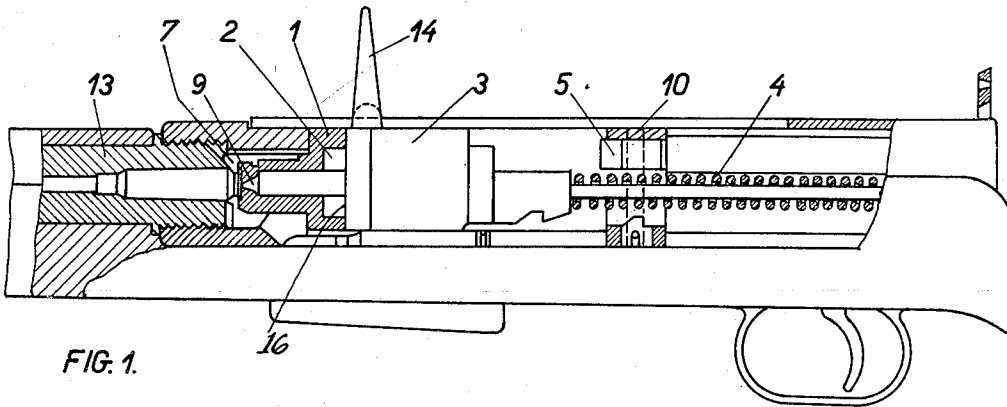


FIG. 1.

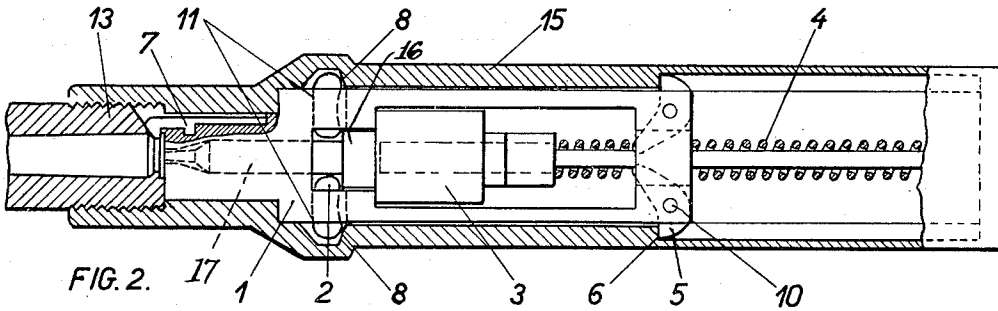


FIG. 2.

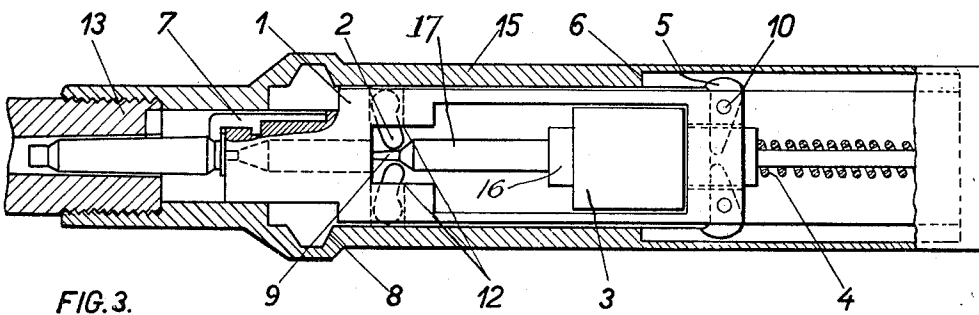


FIG. 3.

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AUTOMATIC FIREARM

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3 Claims. (Cl. 42-3)

The present invention relates to automatic firearms, for instance, machine guns and has for its object to provide an automatic gun having a stationary barrel, no gas chamber, and a breech block which is locked during the firing.

Automatic firearms are known in which the gas pressure in the gun barrel is utilized for actuating the breech block. Such guns have the disadvantage that it is necessary to lubricate the cartridge cases as experience shows that the frictional resistance of a non-lubricated cartridge case relatively to the barrel chamber at the moment of maximum pressure in the chamber, is greater than the pressure on the bottom of the cartridge. An automatic gun according to the present invention is free from this drawback and there is no need to lubricate the cartridge cases.

According to the invention a slidable member is provided and connected with the breech block in such a manner that a very small return rearward movement of the locked breech block produces a comparatively considerable displacement of the said movable member. The kinetic energy of the movable member is transmitted at the end of the stroke of this member to the breech block. The breech block is then further moved rearwardly with very considerable force. At the same time the cartridge case is reliably pulled out of the barrel chamber, even though the cartridge is not lubricated. In this manner it will thus be seen that the breech block mechanism is not operated by the pressure of the gases remaining in the barrel after the firing, but is actuated by utilizing the pressure which exists in the barrel chamber before the bullet leaves the barrel.

In order to obtain a considerable displacement of the movable member during a first short rearward movement of the breech block, the breech block is, according to the invention, provided with a suitable mechanism which preferably consists of two slidable and turnable two-armed locking levers. In the position of rest of the breech block, that is to say, the position occupied before firing, the outer arms of the locking levers bear against inclined walls of suitable recesses provided in the gun chamber, whilst the inner arms rest upon the member slidable in the breech block.

Within an extension of the breech block there may also be provided a further set of two-armed levers, the outer arms of which are adapted to bear against recessed portions of the gun chamber, whilst the inner arms lie within the path of

the member slidable in the breech block. By this means it is possible to obtain a very powerful and considerable rearward movement of the breech block and simultaneous withdrawal of the cartridge case from the bullet chamber. This is attained by the movable slide member within the breech block striking against the inner arms of the second set of levers. At the same time, that is at the commencement of the second part of the movement of the breech block caused by the impact of the sliding member, as the first set of levers, that is the locking levers, is released so as to entirely unlock the breech block. The locking levers slide during this release movement into the breech block under the action of inclined walls provided in corresponding recesses in the gun chamber.

The accompanying drawing shows by way of example one construction embodying the features of the invention.

Fig. 1 is a sectional elevation through the breech block and the adjacent parts of an automatic gun.

Fig. 2 is a longitudinal section partly in plan showing the parts in the position they assume before the firing.

Fig. 3 is a longitudinal section showing the parts in the position they assume after the firing.

Fig. 1 is drawn to a slightly smaller scale than Figs. 2 and 3.

Within the gun chamber 15 is slidably mounted a breech block 1 provided with a known device 7 for withdrawing the cartridge case from the barrel chamber. Within the breech block 1 is slidably mounted a member 3. The breech block 1 is locked in the firing position by means of two two-armed levers 2, the outer arms of which bear against inclined walls 8 of recesses formed in the gun chamber 15, whilst the inner arms of the levers bear upon the plane face 16 of the slidable member 3. The latter member has a cylindrical supporting part 17 and is moved forward and against the levers 2 by a spring 4.

At the moment of firing, the breech block moves backwards. At the same time the locking levers 2 turn owing to the pressure exerted upon them by the walls 8, about points 11 representing at that moment the fulcrum, until the levers strike the walls of the cylindrical part 17 of the sliding member 3 limiting their turning movement. During this turning movement of the locking levers, which is very rapid, the inner arms of the locking levers act upon the plane face 16 of the movable slide member 3 and throw the slide backwards with considerable velocity.

This backward movement of the slide 3 completely releases the locking levers 2 as shown in Fig. 2. The locking levers then slide along inclined walls 8 of the gun chamber 15 and enter into suitable recesses within the breech block, touching in this position the point 9 of the striker pin, and entirely releasing the breech block 1.

Simultaneously with the release of the breech block 1, the movable slide member 3 is thrown against the inner arms of the two-armed levers 5 pivotally mounted at 10 in the breech block and having the outer arms extending into recesses 6 of the gun chamber. Owing to the impact of the movable slide member 3 against the levers 5, the kinetic energy of the slide member is transmitted to the block and a very powerful rearward movement of the block is produced. The high ratio transmission of the levers 5 produces a powerful rearward movement of the breech block 1, whereby the cartridge case is loosened by an extractor 7 in the bullet chamber 13, this being an essential condition for faultless operation of the gun. This powerful movement of the breech block renders it unnecessary to lubricate the cartridge cases.

The slide member 3 may be manually operated by means of a grip 14.

I claim:

1. In an automatic gun the combination of: a casing; a cartridge chamber in said casing; a breech block chamber in said casing; a breech block slidable in said breech block chamber and provided with an extractor; a member slidable in said breech block; two symmetrical locking levers carried by said breech block and mounted therein turnably and slidably relatively to the breech block, said locking levers having outer arms and said casing having inclined walls cooperating with said outer arms, said locking levers having inner arms and said slidable member having a plane face and a cylindrical supporting part operable by said inner arms, whereby during a short initial rearward movement of the breech block, said locking levers are turned by said inclined walls and are caused after the contact with the cylindrical part to throw said sliding member backwards with their inner arms; and means for transmitting the kinetic energy of the thrown back sliding member to the breech block for the purpose of causing a further backward movement of the breech block, substantially as described.

2. In an automatic gun the combination of: a casing; a cartridge chamber in said casing; a breech block chamber in said casing; a breech block slidable in said breech block chamber and

provided with an extractor; two symmetrical double-armed locking levers mounted in said breech block turnably and slidably and having outer arms engaging recesses in said casing; a member slidably mounted in said breech block, said member having a cylindrical supporting part limiting the inward sliding movement of the locking levers and also having a plane face, which bears against the inner arms of said locking levers; and projections carried by said breech block to receive the impact of the sliding member, whereby during a short initial rearward movement of the breech block the locking levers are caused to throw backwards the sliding member within the breech block, whereupon the breech block is further thrown back by the impact of the sliding member, substantially as described.

3. In an automatic gun the combination of: a casing; a cartridge chamber in said casing; a breech block chamber in said casing; a breech block slidable mounted in said breech block chamber and provided with a cartridge extractor; a member slidably mounted within said breech block and having a plane face and a cylindrical supporting part; two symmetrical double-armed locking levers slidably and turnably mounted in said breech block and having outer arms engaging the inclined walls of recesses in said casing in the locked position of the breech block, the inner arms of said double-armed locking levers being prevented from sliding inwardly by the cylindrical supporting part of said sliding member and bearing in the locked position of the breech block against the plane face of the sliding member; double-armed levers pivotally mounted at the end of the breech block; recesses in the casing, into which extend the shorter arms of said double-armed levers; the longer inner arms of said double-armed levers projecting inwardly into the path of the sliding member; spring means tending to move the breech block into its forward position; whereby during a short initial rearward movement of the breech block after firing, the two locking arms are caused to turn under the action of the inclined surfaces within the casing, so as to throw backwards the sliding member within the breech block, whereupon the thrown back sliding member impacting against the rear side of said double-armed levers produces a powerful further rearward movement of the breech block and entirely releases the locking levers, substantially as described.

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