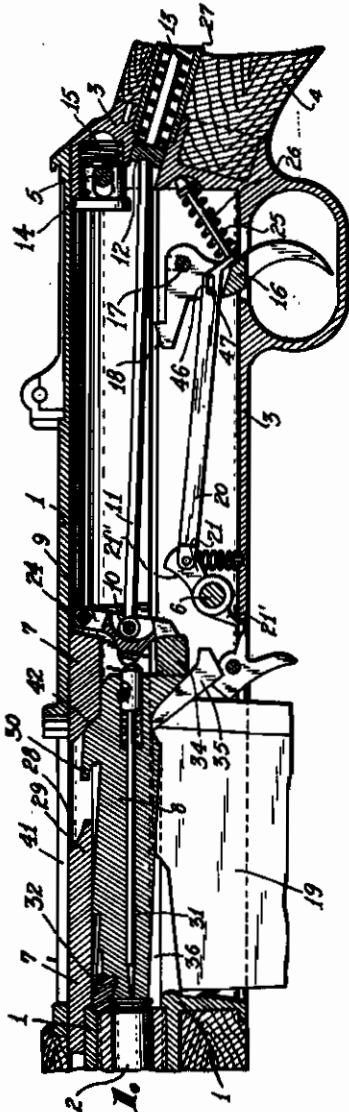


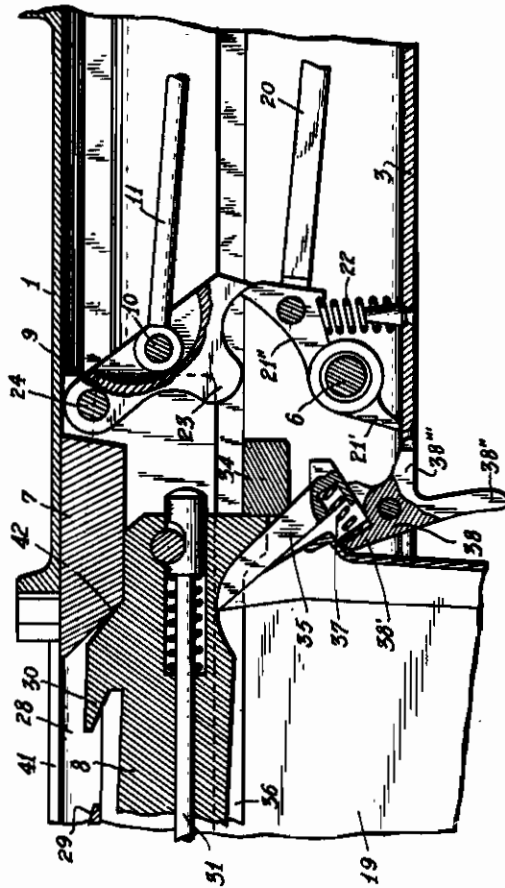
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AUTOMATIC AND SEMI-AUTOMATIC FIREARMS  
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*Fig. 1.*



*Fig. 2.*

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# ALIEN PROPERTY CUSTODIAN

## AUTOMATIC AND SEMI-AUTOMATIC FIREARMS

Josef Koucký, Brno, Bohemia; vested in the Alien  
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Application filed December 6, 1939

My invention relates to automatic or semi-automatic firearms which have a breech block actuated and controlled by a breech block carrier.

It is an object of this invention to provide for such a weapon of simple construction which is especially suitable for automatic and semi-automatic rifles.

It is another object of my invention to provide for such a weapon which consists of a relatively small number of parts.

Other objects of the invention will appear as the specification proceeds.

According to the invention a recuperator spring is so arranged in connection with the breech mechanism of the firearm as to actuate the movements of the striking member of the firing pin and also to actuate, during the forward movement, the breech block carrier until the locking position of the breech block is reached.

By thus using the recuperator spring for two functions I succeed in obtaining a very simple weapon of precision. Further it is possible to build up the individual parts of the firearm with larger dimensions so that they are less wasted, and the solidity and precision of the weapon are increased.

Preferably the striking member arranged for the firing pin is attached directly to the breech block carrier and is rendered adapted to transmit, during the forward movement, the force of the recuperator spring to the breech block carrier, while the striking member is also arranged for being actuated by the same spring during its striking movement after the end of the forward movement of the breech block. In this manner the action of the striking member is made directly depending on the position of the breech block carrier which controls the movements of the breech block, so that a premature firing with unlocked breech block or a belated firing with prematurely opened breech is prevented, and the safety of the weapon is guaranteed.

According to a modification of the invention the striking member has the form of a lever which, by one end, is hinged to the breech block carrier, while the other end of the lever cooperates, before the forward movement has finished, with a stop about which the lever formed by the striking member tilts so as to recede relative to the breech block, while during this relative receding movement the breech block carrier finishes its forward movement and locks simultaneously the breech block.

The firearm is further simplified if the stop, about which the striking member is tilted at the

end of the forward movement of the breech block carrier, forms the sear, which in any known manner is actuated by the trigger with the aid of a connecting rod.

In the drawings affixed to this specification and forming part thereof a rifle self-charging by gas pressure and provided with a tilting breech block is illustrated diagrammatically by way of example as an embodiment of my invention.

In the drawings

Fig. 1 is a longitudinal section through the rifle in the moment of firing a shot.

Fig. 2 shows, on enlarged scale, the cocked striking mechanism before the firing.

Referring to the drawings, 1 is the casing of the breech device, 2 the barrel, 3 the casing of the trigger device and 4 the butt attached thereto. The casings 1 and 3 are connected by means of studs 5 and 6.

In the casing 1 there is arranged, free for shifting, the breech device consisting of the breech block carrier 7, the tilting breech block 8 and the hammerlike striking member 9 to which latter is attached, by means of stud 10, the recuperator rod 11, resting on an abutment 12 of the recuperator spring 13. The recuperator spring 13 is arranged in the tube 27 which is held in the casing 3 by the butt 4. The striking member 9 forms a lever, which is hinged to the breech block carrier 7 by means of the pin 24 and is provided with an extension 23 cooperating with the spring-actuated striker or firing pin 31 accommodated in the breech block. 32 is the extractor for the empty cartridge casings.

The breech block carrier, which possesses a tooth 29, which in any known manner cooperates with the nose 30 of the breech block 8, is connected with the piston rod of the gas pressure loading-device (not shown). In the locking position the breech block 8 abuts against a cross piece 34 under which is arranged, free for removal, the ejector 35, which, during the movement of the breech block 8, passes through a longitudinal groove provided at the underside of this breech block. The ejector is held in the active position by the spring 37 of the locking lever 35 of the magazine 19, locking lever 38 forming a triple-armed lever with arm 38' pressing against magazine 19, while arm 38'' serves for operation, and arm 38''' is the support.

41 is the ejector opening, through which the magazine 19 may also be filled with cartridges from belts.

The trigger device comprises the forked trigger 18 hinged to pin 17. Both branches of this fork

carry at their ends locking teeth 10, which serve for locking the manually cocked breech block carrier 7 during the filling of the cartridge magazine 10 from belts or during an exchange of such belts. The trigger 16 is connected by means of a connecting rod 20, arranged between the branches of said fork, with the sear 21 extending into the slide-way of the end of the striking hammer 23, which projects the breech block. Sear 21 is arranged free for rotation about stud 6 and is loaded by spring 22. The entire trigger device is acted upon by spring 25 which surrounds a guiding bolt 20 passing an aperture in a short arm of the connecting rod 20.

In the casing 3 of the trigger device is arranged a stop 14, acted upon by the spring 15, free for displacement on the connecting stud 5.

The weapon operates as follows:

If a shot is fired off, the pressure of the gases withdrawn from the barrel acts upon the piston which is connected with the breech block carrier 7 and drives same rearwards. During this movement the tooth 29 of the breech block carrier 7 pushes to the nose of the breech block 8 and lifts same out of the locking position, so that the breech block 8 is disengaged of the cross piece 34 and is carried along by the breech block carrier 7 which compresses the recuperator spring 13 via the striking member 9, the recuperator rod 11 and the support 12. Just before the rearward movement has finished, the cartridge ejector ejects the empty cartridge casing through the ejector opening 41. The complete damping of the rearward movement of the breech device is effected by the stop 14.

After finishing the rearward movement the breech device performs, under the action of the compressed recuperator spring 13, the forward movement, during which a fresh cartridge is shifted in the cartridge chamber of the barrel 2. The breech block is continuously engaged with the breech block carrier 7 and is driven forward by same by means of the oblique surfaces shown, while the hammer 9 is entirely turned down, as shown in Fig. 1, with its end projecting the edge of the breech block. Before

the forward movement has finished, the projecting end of the striking hammer 9 strikes on the stop formed by the lever-shaped sear 21, which rests by the arm 21' on the wall of the casing 3. In this moment the striking hammer starts acting as a single-hand lever resting on the sear 21 and is tilted by the force of the recuperator spring 13 in the position shown in Fig. 2. During this movement the breech block carrier 7 finishes the forward movement, during which the sloping edge 42 moves the breech block 8 into the locking position so that it rests on the cross piece 34. The extension 23 of the striking hammer 9 recedes during this movement from the striker 31, and the hammer is cocked. On pulling the trigger 16, the sear 21 is tilted by the action of the connecting rod 20 against the action of the spring 22 so as to release the striking hammer 9 which, under the pressure of the recuperator spring, tilts about the pin 24 until extension 23 strikes the projecting end of the striker 21 and thus effects the explosion of the cartridge. Now the breech block carrier starts its rearward movement, during which it disengages the breech block. During the rearward movement the free end of the striking member 9 slides along the cam face 21'' of the sear, which is tilted against the action of the spring 22. A slit 40, through which passes stud 47 of the trigger, allows the connecting rod 20 to be shifted during this tilting movement. The breech block carrier finishes thereupon its rearward movement, and the whole procedure will be repeated.

The weapon described above and illustrated in the drawing is only an example of the invention, and the details, for instance the arrangement of the breech device or of the trigger device, may be varied in various respects within the scope of the invention.

I wish it to be understood that I do not desire to be limited to the exact details of construction shown and described, for obvious modifications will occur to a person skilled in the art.

JOSEF KOUCKÝ.