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D. GOBBO

1,854,833

## BREECH LOADING GUN

Filed Nov. 13, 1931

Fig. 1

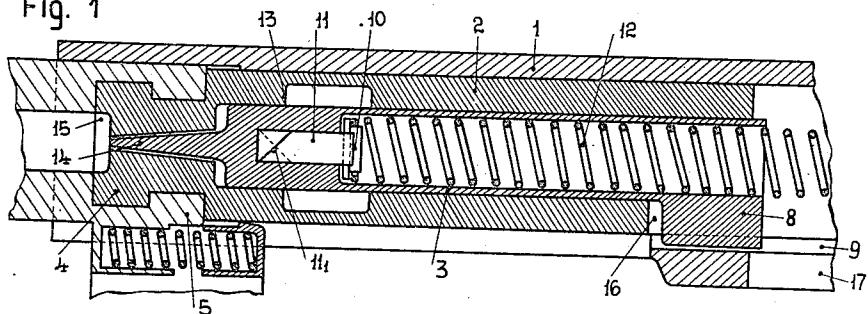


Fig. 2

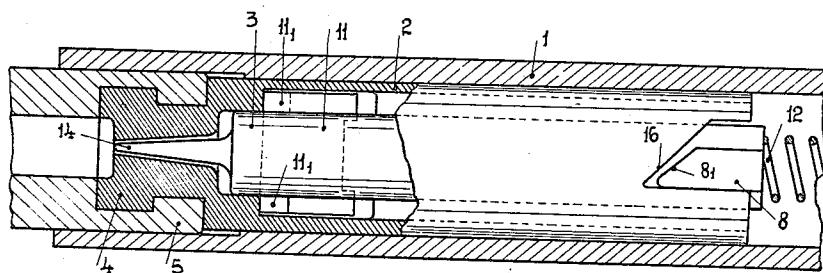


Fig. 3

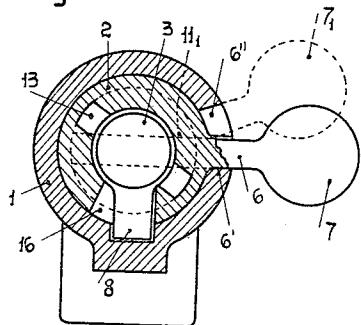


Fig. 4

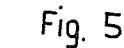
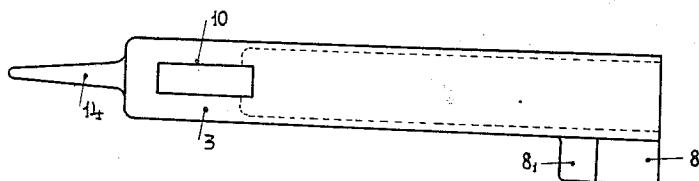


Fig. 6



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## UNITED STATES PATENT OFFICE

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## BREECH LOADING GUN

Application filed November 13, 1931, Serial No. 574,821, and in Italy November 14, 1930.

This invention relates to a closing device for fire arms, more particularly for semi-automatic fire arms with recoiling barrel for firing as repeating arms. The characteristic feature of this device consists in the fact that the striker is only capable of rectilinear movement and one compression spring, acting on a key mounted in a cross slit on the striker causes the breech bolt to perform the feed and closing stroke, the final forward motion of the striker being effected only when the breech bolt is perfectly closed and being caused by a suitable cock.

According to this invention the key fitted in the cross slit on the striker projects on both sides of this latter and its projecting front portions end by a helical (or inclined) surface, which by coming into contact with a corresponding helical surface formed on the breech bolt rotates this latter to its closed position as soon as the breech bolt has reached the end of its axial forward stroke and the shank of the handle has escaped from the rectilinear guide slit on the frame and reaches a corresponding notch which enables the breech bolt to rotate and to reach its locked position. When this rotation is completed the projecting portions of the key rest against the corresponding helical surfaces of the breech bolt, which, having reached the end of its stroke, stops the key and retains the return spring preventing any further release of this latter. The arrangement is such that at this moment the striker on which no further pressure is exerted by the return spring is free to perform a short forward motion allowed by a certain play of the key in the slit on the striker and by the mounting of the striker in the breech bolt, sufficient for the striker pin to project into the cartridge chamber. The slight frictions of the parts of the key cooperating with the striker are sufficient for retaining this latter until it is acted upon by the cock for performing the firing stroke.

The accompanying drawings show, by way of example, a construction of the object of this invention.

Figures 1 and 2 are two sectional views at right angles to each other in the position in

which the breech bolt is closed but the striker has not yet performed its firing stroke.

Figure 3 is a cross section in the closed position.

Figures 4 and 5 show the key and Figure 6 shows the striker.

On the drawings, 1 denotes the frame of the weapon, 2 denotes the breech bolt which is guided in a rectilinear longitudinal slit 6' on the frame by the shank 6 of the handle 7 till the end of the forward stroke, and which can effect an angular rotation from the position 7 to the position 7<sub>1</sub> of Fig. 3, when it has reached the end of this stroke, whereupon it is received by a corresponding notch 6" on the frame. 3 denotes the striker provided with a tooth 8, through which it is guided in a rectilinear direction and kept from turning in a longitudinal groove 9 on the frame. The breech bolt 2 is provided at its front end with closing wings 4 adapted to engage in corresponding seats on the barrel 5.

The weapon shown is of the type with recoil barrel.

The striker is provided with a cross slit 10 in which a key 11 is lodged and acted upon directly by the return spring 12 which works only by compression. The key 11 projects on both sides of the striker as shown in Fig. 2, and its projecting portions end by front helical surfaces 11<sub>1</sub> adapted to co-operate with corresponding helical surfaces formed in the chamber 13 of the breech bolt on an angular width equal to the width of the rotation of the breech bolt to its locked position.

The working of the device is as follows:

During the forward stroke, after the recoil, the return spring 12 acts on the key 11 and this pressure is transmitted to the breech bolt which is moved forward on its feeding stroke. At the end of this rectilinear movement, the breech bolt is no longer retained by the rectilinear guide slit 6' and the helical surfaces 11<sub>1</sub> of the key, which transmit the pressure of the spring 12 to the corresponding helical surfaces of the breech bolt, rotate this latter to its locked position, the key and the striker being kept from turning.

A reliable closure of the breech bolt is thus obtained through the action of the usual return spring which is caused to work only by compression and not by torsion. During this rotation of the breech bolt to its locked position, the striker and its key perform a corresponding forward motion and when the rotation is completed the key is prevented to move further since it abuts against the breech bolt, while the striker effects a further short forward movement allowed by the greater width of its cross slit with respect to the key fitted therein and by the space still free between the striker head and the bottom of the breech bolt chamber in which it is mounted.

The striker is retained in its position merely by the friction of the parts, as the return spring no longer acts thereon. The cock 20 (not shown) then causes the rapid forward movement of the striker by a small extent sufficient for causing its pin 14 to project into the cartridge chamber 15 for firing. The cock acts through a suitable slit 17 on the frame on the rear face of the tooth 8 of the striker.

The breech bolt is provided on its rear portion with a notch 16 with inclined bottom receiving the tooth 8 of the striker large enough for permitting the rotation of the breech bolt while the striker is prevented from turning.

The inclination of the bottom of the notch 16 is made such that at the end of the rotation the front inclined portion of the tooth 8 is situated a short distance from the said inclined bottom for enabling the striker to perform its final firing stroke. This arrangement provides for an auxiliary safety against 40 any untimely forward motion of the striker.

The recoil stroke, following firing, is effected in the usual manner and the usual means employed in fire arms are used therefor.

45. What I claim is:

1. In a fire arm, the combination with a barrel and a frame, of a breech bolt movably mounted in said frame, a striker slidable in an axial hole of said breech bolt, a tooth on 50 said striker engaging in a longitudinal groove on the frame for preventing the rotation of the striker, a return spring acting on the striker and the breech bolt for effecting the feed and closing stroke of the breech bolt 55 and means interposed between said striker and said spring for effecting the locking movement of the breech bolt and at the same time releasing the striker from the action of said spring.
2. In a fire arm the combination with a barrel and a frame at the rear end of said barrel, of a breech bolt movably mounted in said frame, a member on the breech bolt engaging in a longitudinal slit cut on the frame and 65 ending at its front end into a helical slit for

permitting the locking movement of the breech bolt, a striker slidable in an axial hole in said breech bolt, a tooth on said striker engaging in a longitudinal groove on the frame for preventing the rotation of the striker, a key lodged in a cross slit on the striker and projecting at both ends into a breech bolt chamber, inclined surfaces on the front portion of said projecting portions of the key, inclined planes on the front side of said chamber co-operating with the first mentioned planes for effecting the rotation of the breech bolt to its locked position, a return spring abutting against said key for effecting the feed and locking stroke of the breech bolt, said key being of a length, in longitudinal direction, smaller than that of the slit in which it is fitted, so that when the breech bolt is rotated to its locked position under the action of said inclined planes and of said spring, this latter acts solely on the breech bolt through the key, while the striker is free to move by an extent corresponding to the play between said key and its seat in the striker.

In testimony whereof I hereunto affix my signature.

DOMENICO GOBBO.

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