K. VÖLLER.

BREECH PIECE FOR GUNS.

APPLICATION FILED OCT. 18, 1910.

1,008,223.

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Fig. 1.

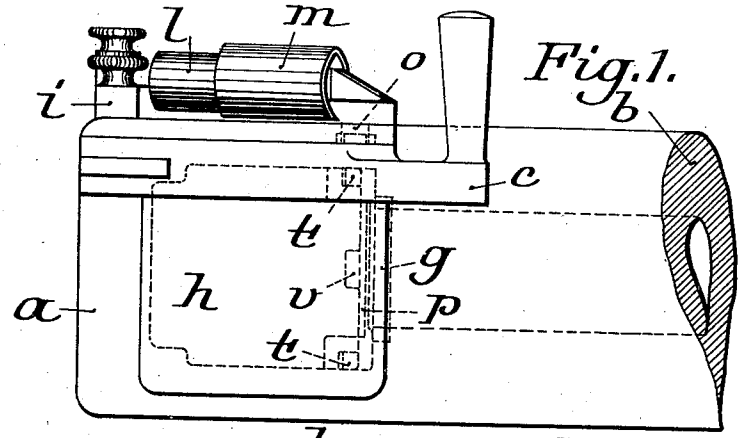


Fig. 2.

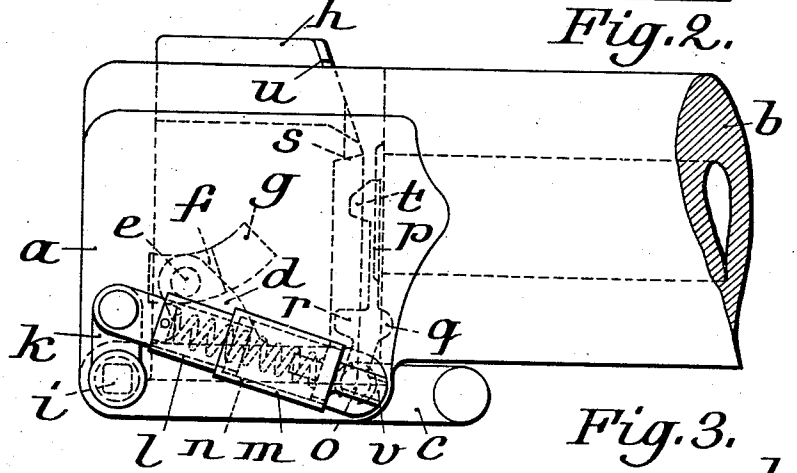
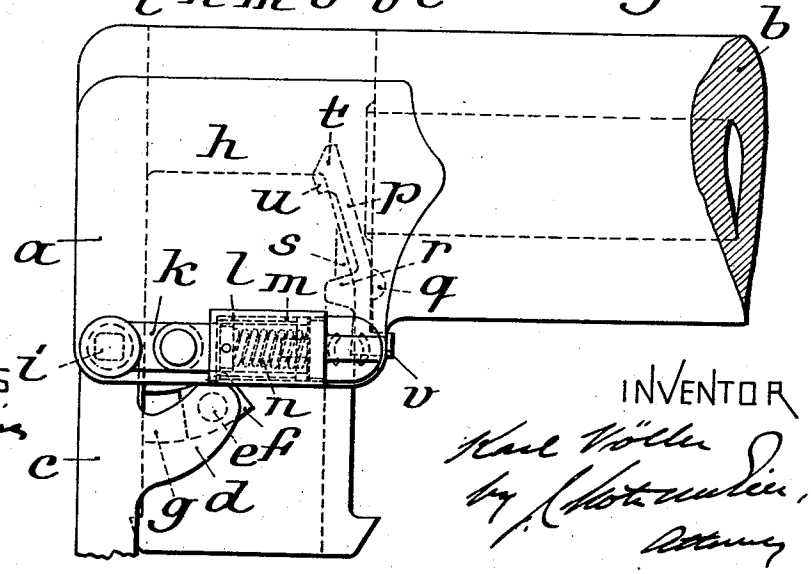


Fig. 3.



WITNESSES

F. L. Chapman

J. A. Murphy

INVENTOR

Karl Völler

by Lothrop & Gitchell,

Attorneys

UNITED STATES PATENT OFFICE.

KARL VÖLLER, OF DUSSELDORF, GERMANY, ASSIGNOR TO RHEINISCHE METALLWAAREN- UND MASCHINENFABRIK, OF DUSSELDORF-DERENDORF, GERMANY.

BREECH-PIECE FOR GUNS.

1,008,223. Specification of Letters Patent. Patented Nov. 7, 1911.

Application filed October 18, 1910. Serial No. 587,720.

To all whom it may concern:

Be it known that I, KARL VÖLLER, engineer, a subject of the German Emperor, residing at 17 Jülicherstrasse, Dusseldorf, Germany, have invented certain new and useful Improvements in Breech-Pieces for 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.

The present invention relates to breech-pieces of the kind in which the breech block is closed by an accumulator connected with the closing lever.

The construction according to the invention differs from other constructions of the kind in that the accumulator is so arranged that the turning moment acting on the lever when the breech block is in wide open position is zero or nearly zero and gradually increases as the breech block moves into the closed position, attaining a maximum in the last stage of the movement; in other words, the closing force is greatest when the breech block is in its end position, when a large force is requisite for properly closing the breech.

The invention is illustrated by way of example in the accompanying drawings wherein—

Figure 1 shows the breech-piece in side elevation and Figs. 2 and 3 in plan, the breech block being closed in Fig. 2 and open in Fig. 3.

To the breech-piece *a* of the barrel *b* is pivoted the closing lever *c*, which carries an arm *d* provided with a pin *e*. This pin engages a block *f* adapted to slide in a curved groove *g*. By turning the lever the block *f* is moved along the groove and the breech block *h* is thus shifted. The bolt *i*, which forms the pivot for the lever in the breech block, turns with the lever *c*.

The opening of the breech, whether by hand or automatically, puts under tension a spring accumulator, which in returning to its normal condition closes the breech by turning the bolt *i* and with it the lever *c*. To the end of the bolt *i* projecting from the breech-piece, there is fixed a second lever *k* to which a sleeve *l* is linked. A second sleeve *m* slides on the sleeve *l* and a helical spring *n* under compression between the two sleeves tends to force them apart. This accumulator is pivoted to the breech-piece by pin *o*, and is so placed that the turning moment of the spring *n* on the pivot *i* is zero when the breech block is in its wide open position, since then the extended axis of the spring *n* passes through the axis of the pivot *i*.

In order that the breech block, when it is nearly fully opened (Fig. 3) may not close again under the pressure of the spring, the breech block is held temporarily in this position by the cartridge ejector *p* which is pivoted in the usual manner in the breech-piece. For this purpose the ejector has a stop *r* on the side turned toward the breech block, against which stop strikes the end *s* of a groove, made in the breech block to accommodate the stop, when the breech is being opened. This turns the ejector so that its claws *t* engage in notches *u* in the breech block and thus prevent the latter from closing prematurely.

When the shell is inserted in the charge chamber the ejector is returned to its normal position by the rim of the cartridge casing. This causes the claws *t* to leave the notches in the breech block and at the same time the latter is pushed into the breech-piece slightly by the projection *r*, thus starting the closing movement by bringing the lever *k* out of its dead position. The spring now obtains a small but gradually increasing leverage and the closing of the breech block proceeds with increasing force until it is completely home. The proportions are preferably such that the increase of the leverage more than compensates the decrease in the pressure exerted by the gradually extending spring.

In order that the breech may be automatically closed without having to load the gun. the ejector *p* is provided with an outwardly extending tail *v*. When this tail is pushed by hand the cartridge ejector is moved in the same sense as it is by inserting a shell, with the same results.

I claim as my invention:

1. In a gun, in combination, a breech-block, a lever for actuating the latter, and a spring-actuated toggle connected to said lever, the central pivot of said toggle being in line with the end pivots when the breech-block is open, and which toggle is broken in the closing movement of the breech-block.

2. In a gun, in combination, a breech-block, a lever for actuating the latter ful-

crumed on the gun and having an arm carrier by its pivot, and a spring-accumulator pivoted to the gun and to the outer end of said arm, said accumulator being on dead center with said arm when the breech-block is open and designed to exert a constantly-increasing leverage as the breech-block is being moved to its closed position.

3. In a gun, in combination, a breech-block, a lever for actuating the latter fulcrumed on the gun and having an arm carried by its pivot, and a spring-accumulator comprising a two-part telescopic casing and a spring inclosed thereby, one of said parts being connected to said arm and the other to the breech.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

KARL VÖLLER. [L. S.]

Witnesses:
WALTER VONNEGUT,
ALFRED HENKEL.