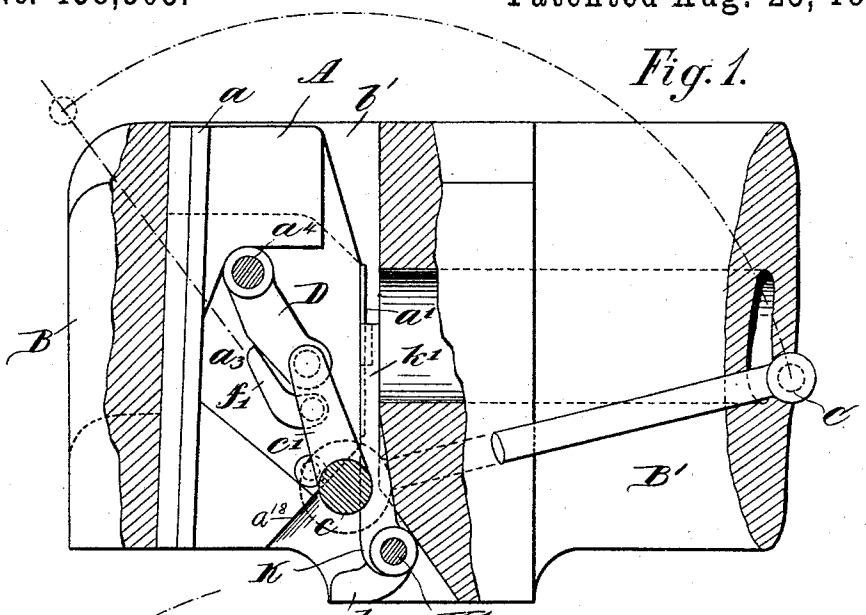
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EMIL RITTER VON SKODA.

BREECH LOADING ORDNANCE.

No. 458,505. Patented Aug. 25, 1891.

Fig. 1.



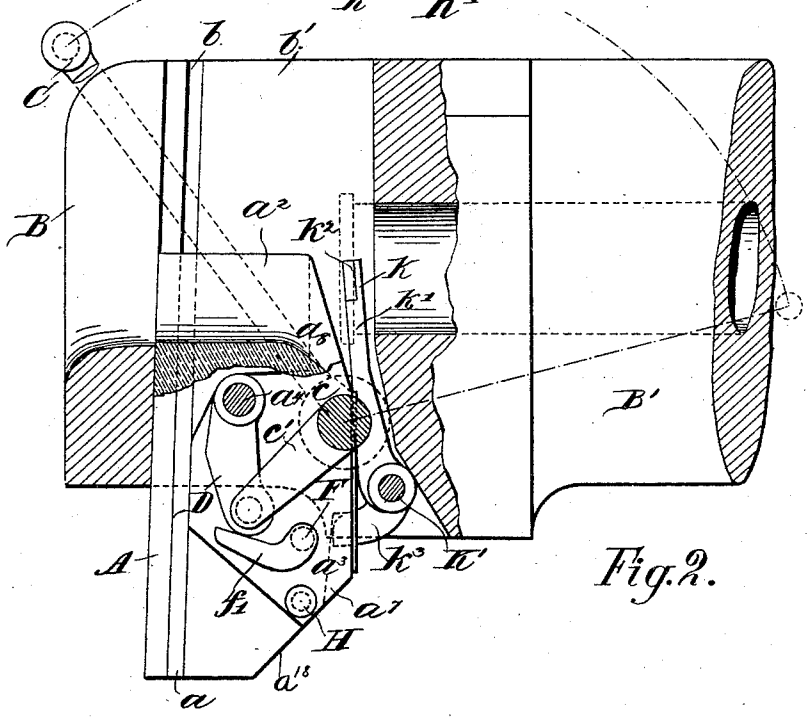


Fig. 2.

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Fig. 4.

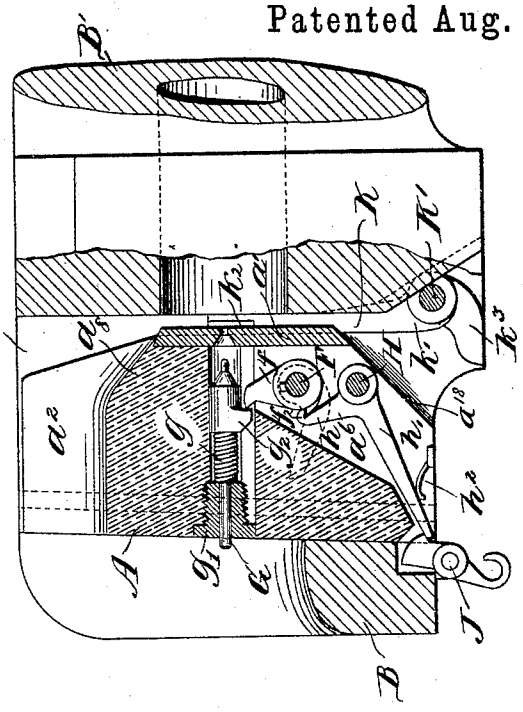
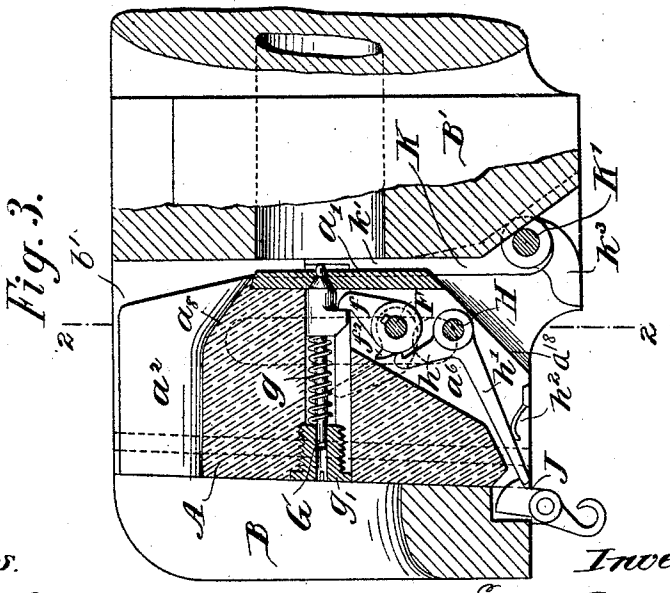


Fig. 3.



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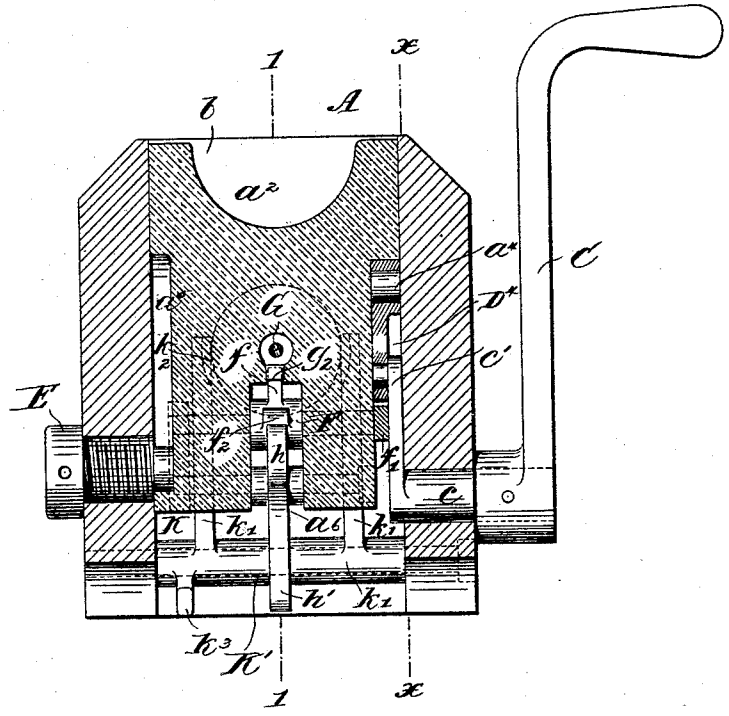
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Fig. 5.



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UNITED STATES PATENT OFFICE.

EMIL RITTER VON SKODA, OF PILSEN, AUSTRIA-HUNGARY.

BREECH-LOADING ORDNANCE.

SPECIFICATION forming part of Letters Patent No. 458,505, dated August 25, 1891.

Application filed October 4, 1889. Serial No. 325,987. (No model.) Patented in Germany September 11, 1888, No. 47,362; in France September 11, 1888, No. 192,922; in England September 11, 1888, No. 13,142; in Belgium November 12, 1888, No. 83,911; in Switzerland November 15, 1888, No. 64; in Italy January 8, 1889, XXII, 24,486, and XLVIII, 119, and in Austria-Hungary February 15, 1889, No. 36,730, and No. 522.

To all whom it may concern:

Be it known that I, EMIL RITTER VON SKODA, a subject of the Emperor of Austria, residing at Pilsen, in the Province of Bohemia, in the Empire of Austria Hungary, have invented certain new and useful Improvements in Breech-Loading Guns, (for which I have obtained Letters Patent in Austria-Hungary, No. 36,730, and No. 522, dated February 15, 1889; in Germany, No. 47,362, dated September 11, 1888; in France, No. 192,922, dated September 11, 1888, and Additional Patent No. 192,922, dated November 20, 1888; in England, No. 13,142, dated September 11, 1888; in Belgium, No. 83,911, dated November 12, 1888; in Switzerland, No. 64, dated November 15, 1888, and in Italy, Reg. Gen., Vol. XXII, No. 24,486, and Reg. Att., Vol. XLVIII, No. 119, dated January 8, 1889;) 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Referring to the drawings, Figure 1 is a side elevation of so much of a gun as is necessary to illustrate my invention, a portion of said gun in rear of the breech being broken away to show the breech-block and a portion of the actuating mechanism therefor. Fig. 2 is a view similar to Fig. 1, a portion of the breech-block being also broken away to show the central cartridge way or channel thereof, said breech-block being shown in its position when the breech-chamber is open. Figs. 3 and 4 are views similar to Figs. 1 and 2, the breech-block being therein shown in axial vertical section on the line 1 1 of Fig. 5, the firing-pin in Fig. 3 being shown as released and in Fig. 4 at full-cock. Fig. 5 is a section on line 2 2 of Fig. 3.

The invention relates to that class of guns known as "rapid-firing guns," in which center or rim fire metallic cartridges are used, and in the drawings and in the following description the invention is shown and will be described in relation to the former class of cartridges.

The invention has for its object to increase the rapidity of fire, in that the movements of the breech-block—that is to say, what is called the "breech-action"—is so constructed as to be operated with great speed, and in that the firing-pin is controlled by the movements of the breech-block in bringing it to a full-cock.

To these ends the invention consists, essentially, in the construction of the breech-action or breech-block actuating mechanism; also in the combination, with the firing mechanism and breech-block, of devices for automatically controlling the firing-pin through the movements of the breech-block to bring the said pin to a full-cock, and, lastly, in structural features and combinations of parts substantially as hereinafter described, and as set forth in the claims.

In the above-described drawings, B′ indicates the breech end of the gun-barrel, in which is formed a vertical slot b'. Near the rear end of slot b' are formed guide-grooves b, Fig. 2, for the guidance of the breech-block A, that is provided on opposite faces with tongues or ribs a, that fit into said grooves b. The breech-block A has a straight vertical rear face and two faces a^8 a^{18}, inclining rearwardly from a front straight vertical face that is provided with the striking-plate a'. In its upper face in the plane of the axial line of the gun-barrel the breech-block has a semi-cylindrical recess a^2, Figs. 2 to 5, that forms a guide for the insertion into the breech-chamber of a cartridge when the breech-block is properly positioned. The breech-block A is further provided with a longitudinal axial perforation for the firing-pin, a vertical axial recess a^6, and a recess a^3 in one of its vertical lateral faces for the breech-action or breech-block actuating mechanism and for the mechanism for controlling the firing-pin.

The devices for operating the breech-block consist of a lever C on a stud c, that has its bearings in one of the lateral walls of the breech-block chamber b', and on the stud is secured a radial arm c', to which is pivoted a

link D, fulcrumed to the breech-block at a^4, as shown in Fig. 1.

The relative arrangement of the lever C, arm c', and link D is such that when the breech-block A is in a position to close the breech and the lever C in the position indicated in full lines in Fig. 1 the axis of c' and the axes of the pivotal connections between c' and D and between the latter and the breech-block will not lie in a straight line; but, on the contrary, the axis of the pivotal connection between c' and D will lie outside and in front of a line intersecting the axis of c' and that of the pivotal connection between the link D and breech-block A. The arm and link thus form such an angle as to firmly support the breech-block against accidental motion within its chamber, such as might result from the recoil of the gun. It will therefore be readily understood that the breech-block is not at the limit of its vertical movement when the lever reaches the position shown in full lines in Fig. 1, said block reaching this limit before the lever C reaches the limit of its movement, the breech-block moving slightly downward, again reaching its proper position to close the breech when the lever C has reached the limit of its motion, the reverse taking place when the breech-block is moved to open the breech—that is to say, when the lever is moved into the position shown in dotted lines in Fig. 1 the breech-block moves slightly upward during the first portion of the movement of lever C, then downward, under the action of arm c' and link D, to the position shown in Fig. 2.

The movements of the breech-block A are limited by a stop E in the left-hand wall of the breech-block chamber, said screw projecting into a vertical groove a^5, Fig. 5, in the lateral face of the breech-block.

A spindle F, that has its bearings in the breech-block, carries within the central vertical recess a^6 of said block a lever f in perpetual engagement with a shoulder g^3, formed on the head of the firing-pin G, Figs. 3 and 4, and within the recess a^3 of the breech-block the said spindle carries a radial arm or lever f', that is held in contact with the link D by the spring g of the firing-pin exerting its power on the lever f on said spindle F when said firing-pin is not cocked. When the firing mechanism is therefore in the position shown in Fig. 3 and the breech-block-actuating mechanism in the position shown in Fig. 1—that is to say, in the positions said mechanisms assume immediately after the firing of the gun—and the lever C is moved from right to left, the breech-block A will first rise slightly as the arm c' and link D straighten out, then as the links move into the position shown in Fig. 2 the lever or arm f' will be rotated, thereby rotating the spindle F and lever f from right to left, forcing the firing-pin in the same direction to a point at full-cock, in which it is automatically locked by the arm h of a sear H, engaging a locking-shoulder f^2 on the hub of lever f, (see Fig. 4,) the arm h' of sear H being held in permanent engagement with a shoulder on a trigger J by means of a spring h^2. The relative arrangement of the arm f' and link D is such that as the breech-block moves down the said arm f' is depressed to a greater extent than is necessary to insure the engagement of the sear-arm h with the full-cock shoulder f^2, so that what is termed an "over-cock" is here provided, as in all other percussion-locks. During the last portion of the downward movement of the link D the arm f' will rise again slightly, remaining in constant contact with said link. In closing the breech, should the sear become accidentally disengaged from the shoulder f^2, the firing-pin would not be suddenly thrown forward by its spring g, owing to the fact that the radial-arm f' is held in contact with the link D by said spring, so that the motion of the firing-pin will correspond with the motion of the link, and will therefore move forward gradually instead of suddenly, thus preventing injury to the firing-pin. As stated above, the radial arm f' is depressed to a greater extent than is necessary to its engagement with the sear; but should by accident such engagement not take place at the time it can take place when the lever C is moved from the position shown in Fig. 2 to that shown in Fig. 1, for the reason that the radial arm f', as the lever is moved, is again depressed to such an extent as to permit the arm h of the sear to engage the notch f^2. In view of the fact that the arm f' is in contact with the link D until the breech-block has reached a position to nearly close the breech-chamber, at which time said link moves away from the said arm, which had been tilted or depressed during the downward movement of the breech-block and locked into position by the sear, it follows that the firing-pin cannot be released until said link has left the arm, or when the breech-chamber is closed.

As shown, the firing-pin G is arranged within a perforation in the breech-block, the outer end of which is closed by a perforated screw-plug g', that serves as a guide for the pin G, the ends of the actuating-spring g bearing against said plug and against the head of the firing-pin, respectively.

The shell-extractor K consists of two levers or radial arms k' on a transverse spindle K', said radial arms having at their upper end a recessed portion k^2, Fig. 2, for the rim of the cartridge-shell. The spindle, on which the extractor-arms k' are formed or to which they are secured, is also provided with a short radial arm k^3, that lies in the path of the breech-block A, which has a vertical groove a^7, the depth of which decreases gradually from the lower to the upper end. As the breech-block descends, the front end of the arm k^3 first enters the groove at its greatest depth, so that the cartridge-shell is first loosened and gradually extracted as the block moves down, and

as the recess a^2 in the breech-block comes opposite the breech the arm k^3 will also have reached the shallowest part of the groove a^3 and the cartridge-shell will be thrown out.

In loading the gun the cartridge is inserted so that its rim or flange will lie in the recesses k^2 of the extractor-arms k', as shown in dotted lines in Fig. 2, and as the breech-block moves up to close the breech the inclined face a^8 of the block moves the cartridge fully into the breech-chamber.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a gun of the class described, a breech-block adapted to move vertically in rear of the breech-chamber, a spring-actuated firing-pin arranged within the breech-block, a locking-lever in perpetual contact with the firing-pin, a sear in engagement with the locking-lever, and a trigger in engagement with the sear, in combination with mechanism for imparting motion to the breeech-block and to the locking-lever of the firing-pin, consisting of a lever, a link connecting the lever with the breech-block, and an arm connected with the locking-lever for the firing-pin and arranged relatively to the link, so as to remain in contact therewith during the upward movement of the block until said block is about to reach a position to close the breech-chamber, substantially as and for the purposes specified.

2. In a gun of the class described, the combination, with the gun provided at the breech with a vertical slot, the rear guide-face of which inclines upwardly and forwardly, and a breech-block adapted to move to and fro in said slot and to be guided by said inclined face, of a lever c', a link D, pivotally connected with the lever and breech-block, respectively, said parts being arranged as set forth, and a spring-actuated lever in perpetual engagement with the rear face of the link, substantially as and for the purposes specified.

3. In a gun of the class described, the combination, with the gun provided at the breech with a vertical slot, the rear guide-face of which inclines upwardly and forwardly, and a breech-block adapted to move to and fro in said slot and to be guided by said inclined face, of a lever c', a link D, pivotally connected with the lever and breech-block, respectively, said parts being arranged as set forth, the rear face of said link having an upward and rearward inclication, and a spring-actuated lever in perpetual engagement with the rear face of the link, substantially as and for the purposes specified.

4. In a gun of the class described, the combination, with the gun provided at the breech with a vertical slot, the rear guide-face of which inclines upwardly and forwardly and provided in its lateral faces with guide-grooves, and a breech-block provided with guide-ribs fitting into said grooves, said breech having parallel front and rear faces, of the lever c', the link D, pivotally connected to the breech-block and lever, respectively, and arranged for operation as set forth, the shaft F, the radial arm or lever f', in perpetual engagement with the link D, and the locking-lever f on said shaft, and a spring-actuated firing-pin contained in the breech-block and in perpetual engagement with the locking-lever, substantially as and for the purposes set forth.

5. The combination, with the breech-block A, the lever c', and the link D, pivotally connected to the block and lever, respectively, said parts being arranged relatively to each other as described, and a spring-actuated firing-pin contained in the breech-block, of the levers f and f' on the same shaft and in perpetual engagement with the firing-pin and link D, respectively, a sear H in engagement with the lever f, and a trigger in engagement with the sear, substantially as and for the purposes described.

In testimony whereof I affix my signature in presence of two witnesses.

EMIL RITTER v. SKODA.

Witnesses:

HUGO TILMOT,

ADOLPH FISCHER.