

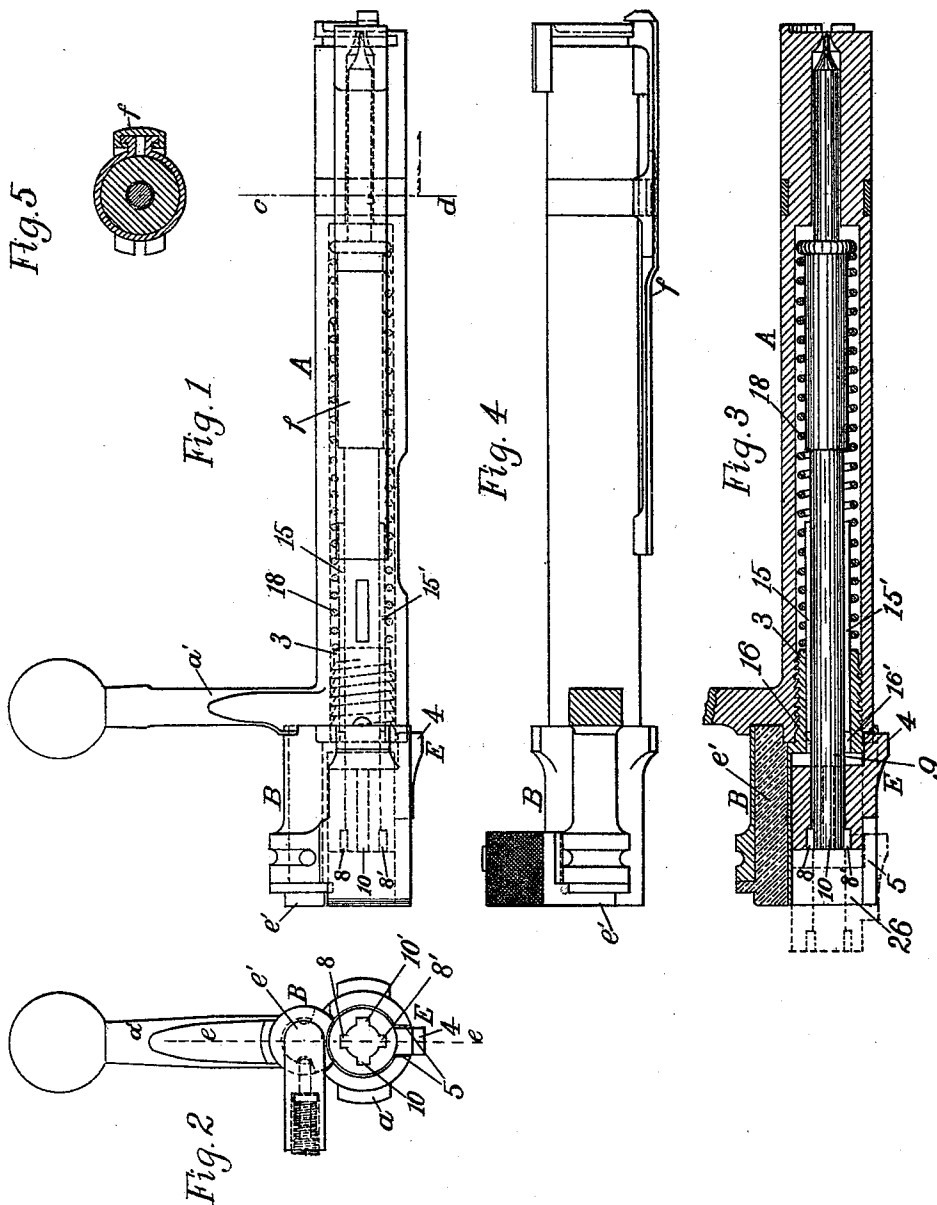
(No Model.)

2 Sheets—Sheet 1.

A. MAUSER.
BREECH BOLT FOR BOLT GUNS.

No. 496,691.

Patented May 2, 1893.



Witnesses:

George E. Mills
W. G. Richards.

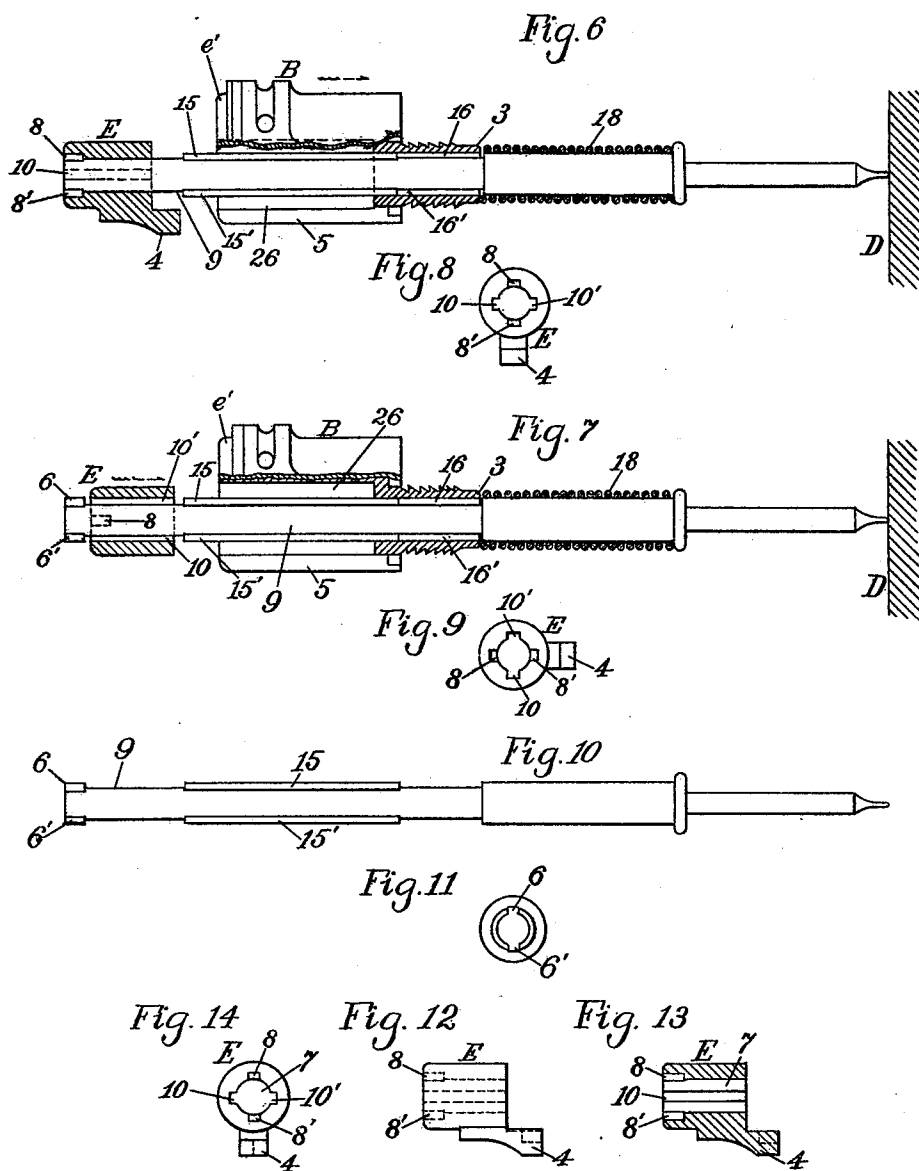
Inventor:

Alfons Mauser,
By his Attorney,
F. H. Richards

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UNITED STATES PATENT OFFICE.

ALFONS MAUSER, OF OBERNDORF-ON-THE-NECKAR, GERMANY.

BREECH-BOLT FOR BOLT-GUNS.

SPECIFICATION forming part of Letters Patent No. 496,691, dated May 2, 1893.

Application filed November 16, 1892. Serial No. 452,176. (No model.)

To all whom it may concern:

Be it known that I, ALFONS MAUSER, a subject of the Emperor of Germany, residing at Oberndorf-on-the-Neckar, Württemberg, Germany, have invented certain new and useful Improvements in Firearms, of which the following is a specification.

This invention relates to that class of breech-loading fire arms in which the firing-pin is contained within the bolt; the object being to provide means for securely holding the firing-pin in place, and whereby said pin may be readily removed and replaced always exactly in the same position.

My improvement is especially applicable to the "Mauser" system of breech-loading guns, and is herein shown applied to the bolt mechanism of a gun of this class.

In the drawings accompanying and forming a part of this specification, Figure 1 is a side view of the bolt-mechanism of a "Mauser" breech-loading gun furnished with my present improvement. Fig. 2 is an elevation of the end of the bolt-mechanism as seen from the left-hand in Fig. 1. Fig. 3 is a longitudinal vertical section in line *ee* of Fig. 2. Fig. 4 is a plan view of the bolt-mechanism, the handle-arm being broken away. Fig. 5 is a transverse section in the line *cd* of Fig. 1, showing the parts at the right hand of said line as seen from a position at the left-hand thereof. Fig. 6 is a side view of the lock-head and firing-pin of the bolt-mechanism removed from the bolt, and is illustrative of the nature, use and advantages of my improvement, this view shows one of the steps of the operation of removing the firing-pin from the lock-head. Fig. 7 is a view similar to Fig. 6, illustrating a further step in the operation of disassembling the parts shown in Fig. 6. Fig. 8 is an end view of the firing-pin head, corresponding to its position in Fig. 6. Fig. 9 is an end view of said head in a position corresponding to that shown in Fig. 7. Fig. 10 is a side view of the firing-pin, in a position corresponding to that shown in Figs. 6 and 7. Fig. 11 is an end view of the firing-pin as seen from the left-hand in Fig. 10. Fig. 12 is a side view of the firing-pin head in a position corresponding to that shown in Figs. 1, 3 and 6. Fig. 13 is a longitudinal sectional view of the firing-pin head, drawn in projection with Fig. 12.

Fig. 14 is an end elevation of the firing-pin head as seen from the left hand in Figs. 12 and 13.

Similar characters designate like parts in all the figures.

The construction and operation of the principal portions of the bolt-mechanism of the fire arm are fully set forth in prior Letters Patent granted to Paul Mauser, No. 440,955, dated November 18, 1890, and No. 477,671, dated June 23, 1892, to which reference may be had for a general description of the features and mode of operation of the mechanism to which my improvement is especially applicable. In this mechanism, the bolt, designated in a general way by A, is provided with the usual handle-arm *a'*, and with the extractor *f*. At its rearward end the bolt is shown threaded to receive the threaded stem 3 of the lock-head B, which, together with the details carried thereby, forms the rearward portion of the bolt-mechanism. The lock-head is shown provided with the safety-bolt *e'*, and with means for actuating the same, as set forth in Letters Patent No. 449,352, granted to Paul Mauser March 31, 1891. This feature not concerning my present improvement, further reference thereto is not deemed necessary. In the aforesaid Letters Patent No. 440,955, the firing-pin head E is shown attached to the rearward end of the firing-pin by means of a screw-thread, the firing-pin being kept from rotation by means of one or more splines or keys (there designated by "*b'*" and herein by 15—15') formed thereon and working in corresponding keyways, 16—16' formed in the lock-head. Said lock-head has formed therein the chamber 26 for receiving the firing-pin head, which is fitted to slide therein and is kept from rotation during its sliding engagement with the lock-head by means of the projecting sear-catch 4; which catch is fitted to slide within the groove 5 that extends from the aforesaid firing-pin head chamber 26 outwardly through the lower side of the lock-head, as will be understood by comparison of the several figures of drawings.

The maximum extent of the sliding movement of the firing-pin within the lock-head, is shown by comparison of Fig. 3 with Figs. 6 and 7, the spline or splines, 15—15', (in the present instance two in number) run in a cor-

responding groove or grooves, 16—16', formed within the lock-head. The normal movement of the firing-pin head is shown by dotted lines at the left hand in Fig. 3, and, it will be observed, does not carry the firing-pin head E out of engagement with the groove 5 of the lock-head. When the firing-pin and its head E are retracted to the full-cock position shown by said dotted lines in Fig. 3, the firing-pin is still held against rotation by the engagement of its splines, 15—15' with said grooves 16—16' of the lock-pin, and at the same time the firing-pin head is held from the rotation by the engagement of its projecting sear-catch or rib 4 in said groove 5 of the lock-head. Therefore, when the firing-pin is retracted, as specified, the head E may have a sliding movement forward from its normal position thereon without disengaging the same from the firing-pin, this movement being for instance, from the longitudinal position shown in Figs. 3 and 6 to that shown in Fig. 7.

The relations and general co-action of the parts being substantially as set forth, for securely holding the firing-pin in place, and also as a means for readily removing and replacing the same always in exactly the same position relative to the other parts of the bolt-mechanism, I construct the firing-pin with one or more projecting ribs or lugs, as, for instance the lugs 6—6', which as herein shown correspond with circumferential and radial positions and also in size with the aforesaid splines 15—15'; this particular correspondence however, is herein adopted for the purpose of facilitating the manufacture of the parts and may be modified in various ways within the scope and limit of my invention. For the purpose of engaging and disengaging the firing-pin head with and from the bolt, said head has formed therein one or more lock notches, or recesses, 8—8', for receiving the firing-pin projections 6—6' as illustrated in the drawings. At other points circumferentially of the bore 7 of the firing-pin head, this has the through groove 10—10' adapted for the passage of said holding-lugs 6—6'.

When it is required to disassemble the bolt-mechanism for cleaning or repairing the same, this mechanism is first removed from the gun by the usual means, after which the lock-mechanism (see Figs. 6 and 7) is removed from the bolt, in this instance by unscrewing the stem 3 of the lock-head B from the rearward end of the bolt. Next, the gunner, placing the point of the firing pin against any suitable block or surface, as D, seizes hold of the lock-head B and forces this down by the firing spring 18 to about the position indicated in Fig. 6, with a considerable space between the lock head and the firing-pin head E, and the sear-catch 4 is withdrawn some distance from the slot 5. The lock-head being now held down in the position indicated, the firing-pin head E is then slid down on the stem of the firing-pin from the longitudinal position shown in Fig. 6 to that shown in Fig. 7,

being at the same time turned around on the firing-pin stem until the through groove 10—10' come in alignment with the projections 6—6', respectively, when the head E is free to be slid off from the firing-pin and the lock-head left free to be slid off from said pin.

To assemble the parts the reverse operation is performed. The firing-pin with the firing-spring thereon, is set upon the support D, and the lock-head B is then slid upon the firing-pin stem 9, and forced down upon the firing-spring to the position indicated in Figs. 6 and 7. Next, the firing-pin head E is turned to the position indicated in Fig. 7 and slid entirely over the projections or catches 6—6', then turned to the circumferential position indicated in Fig 6 and finally slid back into engagement with said catches 6—6', as shown in Fig. 6. After this the lock-head being released, is forced by the firing-spring back into engagement with the firing-pin head, as illustrated in Figs. 1, 2, and 3.

By means of my present improvement, the firing-pin and firing-pin head, in a bolt mechanism of the class specified, may be taken apart and reassembled with ease and certainty. No care is required on the part of the gunner to affect a proper adjustment of the parts and these cannot be assembled in an inoperative position.

The advantages of this improvement will be obvious by comparing the same with the construction heretofore employed in the system of firearms specified, as illustrated, for instance, in the aforesaid Letters Patent No. 440,955, where the firing-pin head is shown screwed onto the firing-pin stem. According to that arrangement the gunner may, by accident or otherwise, omit to screw the firing-pin head to exactly the right point on the firing-pin stem, and thereby when the mechanism is assembled cause the point of the firing pin to project beyond the face of the bolt and thus interfere with the operation of the gun by preventing the cartridge head from coming back into engagement with the extractor.

Having thus described my invention, I claim—

1. In a bolt-gun, the combination with the bolt and its lock-head bored and grooved for the passage through it of the firing-pin of the firing-pin non-rotatably fitted within said lock-head, having at the end thereof one or more firing-pin-head-engaging projections and the firing-pin-head fitted for sliding engagement in the lock-head without rotation therein, and constructed to engage said firing-pin projections when in its normal working position, whereby said firing-pin and its head may be assembled and disassembled in the manner substantially as set forth.

2. In a bolt-gun, as a means for removing the firing-pin from the bolt-mechanism and for replacing the same in its working position therein, the combination with the reciprocating firing-pin non-rotatable as set forth and

having at its rearward end a firing-pin-head-
engaging catch substantially as described, of
the firing-pin head slidable and revoluble on
the firing-pin forward of said catch and con-
5 structed to engage the catch when turned to
one position upon the firing-pin and to slide
over the same when turned to another posi-
tion on the pin, substantially as described
and for the purpose set forth.

ALFONS MAUSER.

Witnesses:

FRANCIS H. RICHARDS,
EMMA G. FOWLER.