

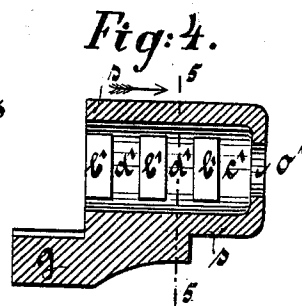
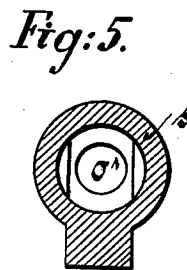
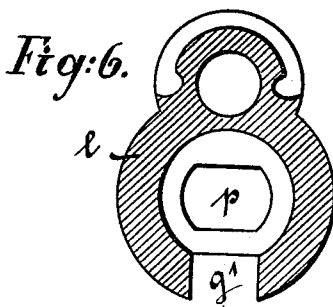
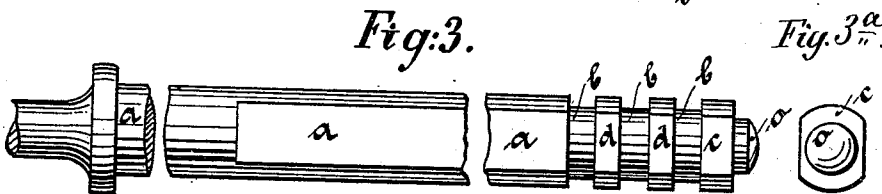
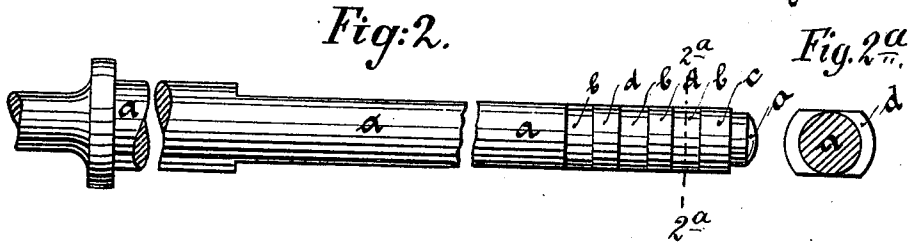
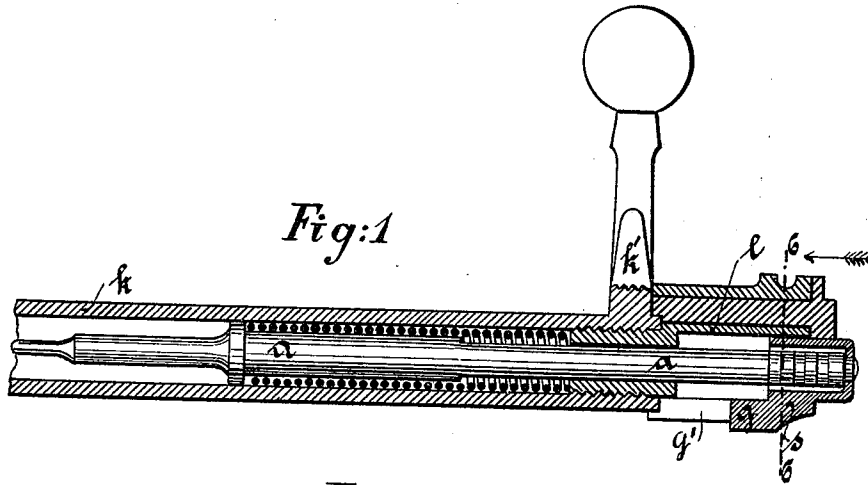
(No Model.)

P. MAUSER.

COUPLING FOR FIRING PINS AND PIN NUTS IN BOLT GUNS.

No. 499,328.

Patented June 13, 1893.



WITNESSES:

Fred White
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UNITED STATES PATENT OFFICE.

PAUL MAUSER, OF OBERNDORF, GERMANY, ASSIGNOR TO THE WAFFEN-FABRIK MAUSER, OF SAME PLACE.

COUPLING FOR FIRING-PINS AND PIN-NUTS IN BOLT-GUNS.

SPECIFICATION forming part of Letters Patent No. 499,328, dated June 13, 1893.

Application filed February 9, 1893. Serial No. 461,555. (No model.)

To all whom it may concern:

Be it known that I, PAUL MAUSER, a subject of the King of Württemberg, German Emperor, and a resident of Oberndorf-on-the-Neckar, in the Kingdom of Württemberg, Germany, have invented certain new and useful Improvements in Coupling the Firing-Pins with the Pin-Nuts and the Small Locks of Bolt-Guns, of which the following is a specification.

This invention relates to bolt-guns, and particularly to the coupling between the firing-pin, pin-nut and small-lock of such guns, and aims to improve such devices.

The coupling of the firing-pin with the pin-nut and the small-lock of bolt guns has been accomplished heretofore by screwing the pin-nut, which works in a slot formed for it in the small-lock, upon the screw-threaded ends of the firing-pin. This construction is disadvantageous, since, if the nut was not screwed down fully to its correct place on the pin when applied thereto, which fault was liable to often and easily occur, the point of the firing-pin would protrude too much, and thereby explode the cap in the cartridge even by the mere closing of the bolt, or at least give the possibility for such premature explosion.

The object of my present invention is to produce a coupling which it is impossible to connect in an imperfect manner, and the use of which absolutely avoids the said detriment.

To this end in carrying out the preferred form of my invention I provide certain improvements which will be fully hereinafter set forth.

In the accompanying drawings, in which the same letters of reference indicate similar parts, Figure 1 is a vertical axial section of a bolt, the firing-pin of which is coupled with the pin-nut and the small-lock according to the preferred form of my invention. Fig. 2 is a fragmentary view of the firing-pin in elevation. Fig. 2^a is a cross section thereof on the line 2^a—2^a. Fig. 3 is a fragmentary view of the firing-pin in elevation and turned ninety degrees from its position in Fig. 2. Fig. 3^a is an end elevation thereof. Fig. 4 is an axial vertical section of the pin-nut alone. Fig. 5 is a cross section thereof on the line 5—5 of Fig. 4 and Fig. 6 is a cross section of the small-lock on the line 6—6 of Fig. 1. Figs. 2

to 6 inclusive are drawn on a scale double the size of Fig. 1.

Referring to the drawings let *k* indicate the usual oscillatory and reciprocatory bolt of a breech-loading bolt-gun, *k'* its handle, *l* the usual small-lock swiveled to the rear end of the bolt, *a* the firing-pin movable within the bolt and small-lock, and *s* the pin-nut fastened to the firing-pin. The bolt *k* is internally hollow and carries the usual coil spring for forcing the firing-pin forward. The small-lock *l* has a groove *g'* on its under side as usual, and the usual hollow interior into which the pin-nut *s* passes. The pin-nut has the usual trigger-nose *g* which moves in the groove *g'* of the small-lock, the pin-nut being thereby prevented from rotating when its nose is in the small-lock.

According to my invention the trigger *a* and small-lock *l* are connected together non-rotatively but in such manner that the trigger can reciprocate relatively to the small-lock, and the firing-pin and pin-nut are coupled together by inter-engaging reciprocal shoulders on each connected together by the rotation of one relatively to the other, susceptible of such connection in only one position, and when the parts are relatively disposed at an angle to their normal operative position, which shoulders are interlocked as the nut is rotated on the pin to its normal position thereon, whereupon when the nut moves into its recess and groove in the small-lock and is thereby prevented from rotation relatively to the pin, the separation of the parts cannot be effected until it has been drawn entirely out of the small-lock. Thus the pin and its nut can only be coupled together in the correct position.

In the preferred embodiment of the invention illustrated in the drawings, the long part of the firing-pin *a* is cylindrical and at its rear end it is turned down to a short tenon *o*, corresponding to the round hole *o'* in the rear end of the pin-nut *s*. The rear portion of the pin, to a length corresponding to the length of the pin-nut, is provided with a number of prismatic annular grooves *b* in its periphery, disposed in such manner as to leave projecting ribs or shoulders between them. These ribs, are preferably three in number, the end one lettered *c* being broader than the others

lettered *d*. The sides of the firing-pin *a* are cut away at its rear to form flattened faces or shoulders. The pin-nut *s* is bored out concentrically to the hole *o* to a size corresponding to the diameter of the grooves *b* of the firing-pin. This boring is then provided with annular grooves *c' d'* corresponding to the ribs *c* and *d* of the firing-pin, and the ribs *b'* between these grooves are cut away or removed on opposite sides, preferably at top and bottom as seen in Fig. 4. The hole *p* through the small-lock *l*, through which hole the firing-pin passes, is flattened, preferably at top and bottom to coincide with the flattened sides of the firing-pin, whereby the latter cannot rotate in the small-lock. The sides of the firing-pin are flattened a sufficient distance to permit its rearward movement through the small-lock until the nose *g* of its pin-nut is entirely free from the small-lock.

For shifting or coupling the pin-nut *s* over the firing-pin *a*, the rear end of the latter is caused to protrude at the rear of the small-lock *l*, and the pin-nut *s* is turned ninety degrees from its normal position so as to bring its shoulders *b'* to coincide with the flat sides of the firing-pin, whereupon the pin-nut can be shifted over and upon the rear portion of the firing-pin until the latter is properly in position in the pin-nut, and then the pin-nut can be turned ninety degrees to its normal position, whereupon the ribs *c d* of the pin enter and fit into the grooves *c' d'* of the pin-nut, and the parts are firmly locked together. As the rib *c* is broader than the other rib *d* and will fit only the groove *c'*, the pin-nut can only be turned around the firing-pin, or vice versa, when the pin-nut is pushed over or upon the firing-pin to such position that the rib *c* and groove *c'* coincide, that is when the parts are in correct position. When the pin nut has been turned down and its nose *g* passed into the groove *g'* of the small-lock, the shoulders *d c* of the pin and *b' b'* of the nut are in engagement, and the nut and pin cannot be separated until the nut has been turned relatively to the pin. Such turning of the nut is prevented by the small-lock and therefore the parts are locked firmly together.

The sides of the firing-pin *a* must be flattened for such a distance that when it is pushed through the correspondingly shaped hole *p* of the small-lock *l*, the straight sides of which hole must be at an angle to the sides of the longitudinal slot *g'* of the small-lock, preferably an angle of ninety degrees as shown, the pin can be pushed sufficiently rearwardly to permit its pin-nut *s* to be moved out of engagement with the small-lock so that it can be turned sufficiently relatively to the firing-pin to bring the interlocking shoulders out of engagement for uncoupling the nut from the pin. In the construction shown the nut would have to be turned ninety degrees. When the pin is drawn forward by the spiral spring actuating it, the pin-nut coupled to it must follow and its nose *g* will enter the

slot *g'* of the small-lock. Thereafter the nut cannot turn on the pin, and the latter is prevented from turning in the hole *p* of the small-lock. Hence the parts cannot be uncoupled.

It will be seen that my invention provides an improved coupling whereby it is impossible to connect the pin-nut and firing-pin incorrectly, and that thereby the possibility is avoided of the firing-pin protruding too far out of the bolt. Thus the premature explosion of the cap of the cartridge by the mere closing of the bolt is prevented.

It will be understood that the invention is not limited to the exact details of construction herein set forth as its preferred form, as these may be varied, or any well known equivalents substituted therefor, as circumstances or the judgment of those skilled in the art may dictate, without departing from the essential features of the invention.

What I claim is, in bolt-guns, the following-defined novel features and combinations, substantially as hereinbefore set forth, namely:

1. In a bolt-gun, the bolt and small-lock, in combination with a firing-pin carried by said parts, non-rotatively connected thereto, and axially movable therein, and a pin-nut for said firing-pin coupled thereto, movable therewith, and non-rotatively engaged by said small-lock, said pin and pin-nut having interengaging reciprocal shoulders constructed when said parts are in the normal position to lock them together, and when said parts are relatively rotated to disengage and permit their separation, substantially as and for the purpose set forth.

2. The combination with a bolt for breech-loading bolt-guns, of the firing-pin *a*, the pin-nut *s* and the small-lock *l*, said firing-pin having upon its rear portion flattened sides, and said small lock having a hole *p* fitting and corresponding to the flattened portion of said pin and through which said pin slides, said pin constructed at its rear end with a plurality of ribs, one of which is broader than the others, and said pin-nut constructed internally with grooves corresponding to and fitting said ribs, said pin and nut constructed when the latter is placed over the former and rotated relatively thereto to be coupled together by the inter-engagement of said ribs and grooves, and said small-lock having a slot *g'*, and said nut a nose *g* entering said slot, whereby when said nut and pin are coupled together and said nose and slot are in engagement the nut cannot be turned to uncouple the pin, substantially as and for the purpose set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

PAUL MAUSER.

Witnesses:

LOUIS GOTTSCHALK,
FERD. C. GOTTSCHALK.