

(No Model.)

2 Sheets—Sheet 1.

P. MAUSER.
SHELL EXTRACTOR FOR BOLT GUNS.

No. 477,671.

Patented June 28, 1892.

Fig: 3.

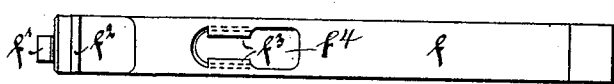


Fig: 4.

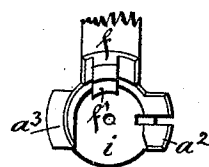


Fig: 1.

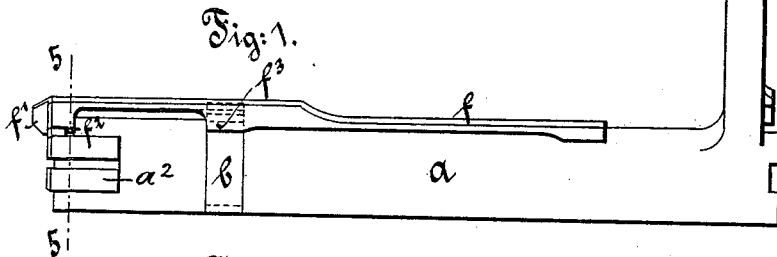


Fig: 5.

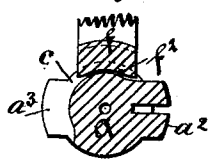


Fig: 2.

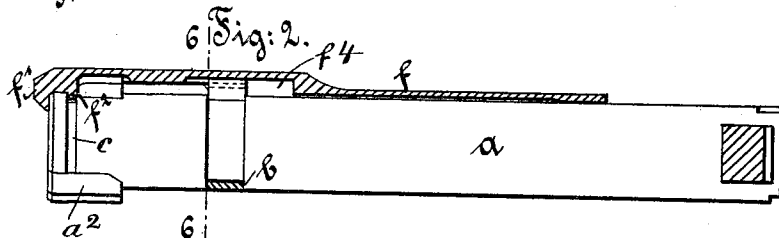


Fig: 6.

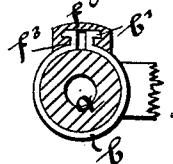


Fig: 7.

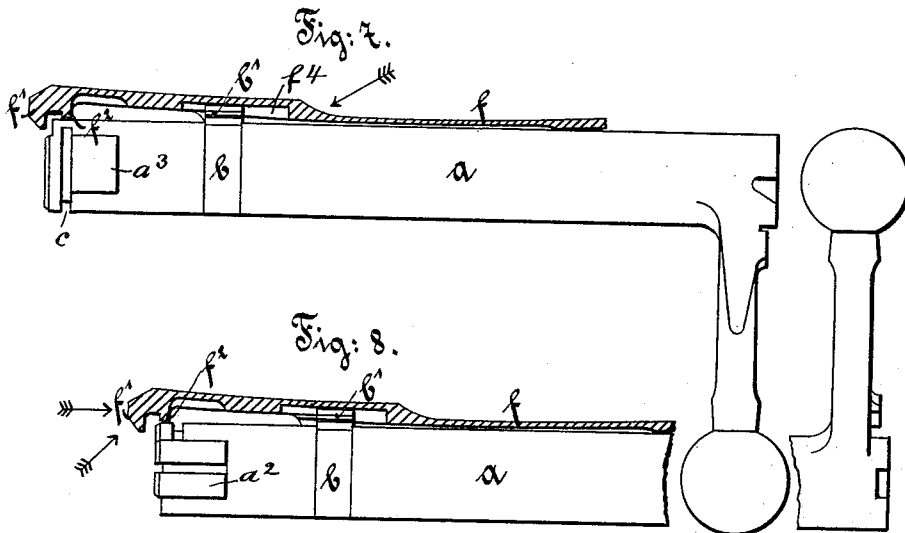
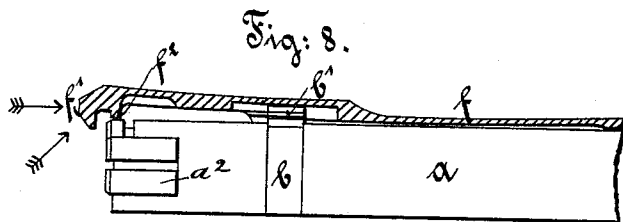


Fig: 8.



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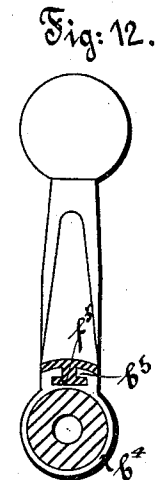
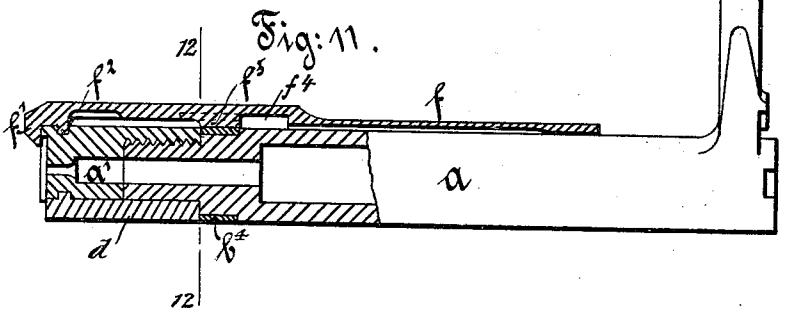
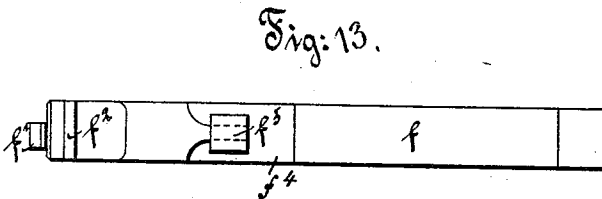
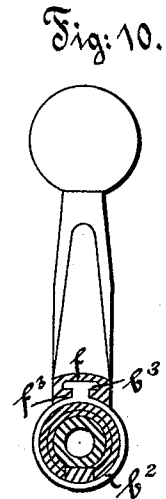
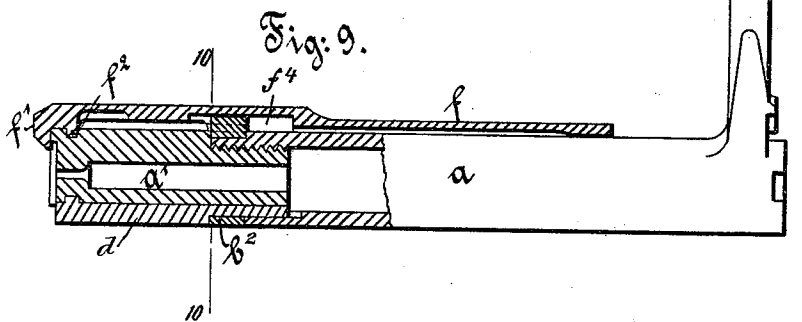
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2 Sheets—Sheet 2.

P. MAUSER.
SHELL EXTRACTOR FOR BOLT GUNS.

No. 477,671.

Patented June 28, 1892.



WITNESSES:

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UNITED STATES PATENT OFFICE.

PAUL MAUSER, OF OBERNDORF-ON-THE-NECKAR, GERMANY, ASSIGNOR TO
WAFFENFABRIK MAUSER, OF SAME PLACE.

SHELL-EXTRACTOR FOR BOLT-GUNS.

SPECIFICATION forming part of Letters Patent No. 477,671, dated June 28, 1892.

Application filed February 29, 1892. Serial No. 423,237. (No model.)

To all whom it may concern:

Be it known that I, PAUL MAUSER, a subject of the King of Württemberg, German Emperor, residing in Oberndorf-on-the-Neckar, Kingdom of Württemberg, German Empire, have invented certain new and useful Improvements in Cartridge-Shell Extractors for Breech-Loading Bolt-Guns, of which the following is a specification.

10 This invention relates to the connection of the extractor to the bolts of bolt-guns in which the bolt has an oscillatory and also a reciprocating movement and in which the extractor consists of an elongated metallic piece adapted to rest against the side of the bolt and within a longitudinal groove in the breech-case, the extractor being connected to a ring swiveled to the bolt in such manner that the latter can be rotated independently of the extractor, while the extractor will be compelled to follow the longitudinal reciprocating movements of the bolt. One such construction of breech-loading bolt-gun with its extractor is illustrated in my United States patent, No. 467,180, dated January 19, 1892.

25 My present invention constitutes an improved connection between the ring and extractor in guns of this class, and aims to provide an improved connection, which will be cheaper and more convenient of construction and operation than is that shown in my said patent. To this end in carrying out my invention in its preferred form I construct the ring engaging the bolt with laterally-projecting shoulders, and I construct the extractor with similar shoulders adapted to engage the shoulders on the ring by the longitudinal movement of the extractor relatively to the ring, said shoulders being adapted when the parts are in the correct relative position to lock the extractor and ring together.

35 In the accompanying drawings, which illustrate my invention as applied to the bolt of a gun of the class shown in my said patent, Figure 1 is a side elevation of the bolt and extractor, the latter being in the position relatively to the bolt which it occupies when the bolt is in the closed position in the breech-case of a gun. Fig. 2 is a side elevation of the bolt, its handle being in section, showing the ring and extractor in section, the bolt be-

ing shown as turned ninety degrees from the position shown in Fig. 1, this being the position occupied by the bolt when it is turned to open the breech of the gun. Fig. 3 is a side elevation of the extractor, looking toward its inner side. Fig. 4 is a front elevation of Fig. 1. Fig. 5 is a cross-section of Fig. 1 on the line 5 5. Fig. 6 is a cross-section of Fig. 2 on the line 6 6. Fig. 7 is a side elevation of the bolt turned one hundred and eighty degrees from the position shown in Fig. 1, the extractor being shown in section. This is the position occupied by the parts when the extractor is to be separated from the bolt, the arrow in this figure showing the direction of pressure on the extractor for disengaging it from its ring. Fig. 8 is a side elevation of the bolt, partly broken out, shown in the same position as in Fig. 1, the extractor being shown in section in the position occupied as it is being attached to the bolt, the arrows indicating the direction of pressure on the extractor to force it into complete engagement with the ring. Fig. 9 is a side elevation of the bolt, partly in axial section, showing a modified construction. Fig. 10 is a cross-section thereof on the line 10 10. Fig. 11 is a view corresponding to Fig. 9, but showing another modification. Fig. 12 is a cross-section thereof on the line 12 12, and Fig. 13 is an inner face view of the extractor shown in Fig. 11.

Referring to the drawings, let *a* designate the bolt as a whole, *b* the ring, and *f* the extractor. The bolt *a* may be of any suitable or known construction, that shown having the usual handle for manipulating it at the rear end, a cartridge-recess *i* at the front end, recoil-lugs *a*³ *a*² at the front end, a peripheral groove *c* near its front end, and an annular groove surrounding its body.

The bolt (shown in Figs. 1 to 8, inclusive) is made of one integral piece of metal, into which the annular groove is formed.

According to my invention the ring *b*, which may be of any known construction that will fit and relatively engage the annular groove of the bolt *a*, is provided with lateral shoulders *b*¹, and the extractor *f*, which consists, as usual, of an elongated metallic piece, is provided with corresponding lateral shoulders *f*², constructed to engage with the shoul-

ders of the ring *b*, and thereby lock the parts together. The ring *b* (shown in Figs. 1 to 8, inclusive) is a split ring having its ends extending outwardly and thence backwardly over the body of the ring to form the shoulders *b'*, as best seen in Fig. 6, while in this construction the shoulders *f*³ on the extractor project inwardly from the side walls thereof and embrace the ends or shoulders *b'* of the ring exteriorly, whereby the expansion of the ring is prevented when the extractor is locked thereto. The extractor *f* is formed with the usual rearwardly-extending elastic tail bearing against the side of the bolt and at its front end with the usual claw *f'* for engaging the base of the cartridge-shell, and with the usual cross-rib *f*², adapted to fit into the groove *c* at the front of the bolt *a* for receiving and sustaining the longitudinal strains occurring during the use of the extractor. It is also recessed rearwardly of this rib, as heretofore, to make room for the recoil-projection *a*³.

According to my invention the extractor is constructed with a recess *f*⁴ at the rear of the shoulders *f*³ in order that the shoulders *b'* of the ring *b* may enter this recess, and thus be brought opposite to the shoulders of the extractor in such manner that by moving the latter longitudinally relatively to the ring the shoulders can be brought into engagement with each other. When the extractor and ring are thus in engagement, the disengagement is normally prevented by the engagement of the cross-rib *f*² with the groove *c* of the bolt, which serves to prevent longitudinal movement of the extractor relatively to the bolt and ring, and consequently prevents the disengagement of the parts.

In separating the extractor *f* from the bolt the latter is turned until the extractor rests with its rib *f*² against the portion of the forward end of the bolt, which is not grooved, as seen in Fig. 7, whereupon by pressure with the thumb against the tail of the extractor in the direction indicated by the arrow in this figure the extractor can be moved forward until its shoulders *f*³ pass from engagement with the shoulders *b'* of the ring, whereupon the extractor will be free.

To attach the extractor, which can be most easily done when the parts are in the position shown in Fig. 8, the ring *b* will be pressed into the annular groove until its hooks or shoulders *b'* are brought sufficiently together, whereupon the extractor *f* will be placed with its recess *f*⁴ over the hooks *b'*, when by sliding the extractor rearwardly its shoulders *f*³ will embrace the shoulders *b'*, and on sliding it home its cross-rib *f*² will snap into the groove *c*, and thus prevent its further longitudinal movement in either direction, whereupon the parts will be locked together.

When a solid ring *b* is used instead of a split ring, the invention may be applied in either the form shown in Figs. 9 and 10 or in that shown in Figs. 11 to 13, inclusive. In

the former the ring *b* (here lettered *b*²) is shown as solid with outwardly-extending shoulders *b'*, (here lettered *b*³), and the bolt *a* is shown as made of two pieces, the usual body *a*, which is internally screw-threaded, and a head *a'*, having an externally-screw-threaded shank engaging the screw-thread in said body and locked in place by a key *d*, the parts being constructed to leave an annular groove surrounding the bolt for the reception of the ring *b*.

In the construction shown in Figs. 9 and 10 the extractor is identical with that previously described as to Figs. 1 to 8, inclusive.

The bolt shown in Figs. 11 to 13, inclusive, is made of two parts, the usual body having an externally-screw-threaded shank and an internally-screw-threaded head *a'*, secured to the body by being screwed over its shank and locked in position by a key *d*. The ring *b* (here lettered *b*⁴) in this instance is solid, but has inwardly-projecting hooks or shoulders *b'*, (here lettered *b*⁵), and the extractor *f* has outwardly-extending shoulders *f*³, (here lettered *f*⁵), adapted to pass beneath and between the shoulders *b*⁵, as best seen in Fig. 12.

It will be seen that my invention provides a simple and improved connection between the extractor and the ring on the bolt, which can be easily made, which will not permit the accidental separation of the parts, and which can be easily manipulated to separate or attach the extractor to the bolt.

What I claim is, in cartridge-shell extractors for breech-loading bolt-guns, the following-defined novel features and combinations, substantially as hereinbefore set forth, namely:

1. The combination, with an oscillatory bolt having a groove *c* near its front end and constructed with an annular groove surrounding its body, of a ring engaging said annular groove in the bolt and having laterally-projecting shoulders, and a shell-extractor consisting of an elongated metal body adapted to rest against the side of the bolt, having an extracting-claw at its front end, a cross-rib *f*² rearwardly thereof and adapted to engage said groove *c*, and lateral shoulders constructed to engage the lateral shoulders of said ring, and thereby to lock said extractor to said bolt.

2. The combination, with an oscillatory bolt having an annular groove surrounding its body, of a ring engaging said annular groove and having projecting shoulders *b'*, and a shell-extractor consisting of an elongated metal body adapted to rest against the side of the bolt, having an extracting-claw at its front end and constructed with shoulders *f*³, adapted to engage the shoulders on said ring when the extractor is moved longitudinally relatively to said bolt, and thereby to lock said parts together, and means on said extractor and bolt constructed to normally prevent the longitudinal movement of the former relatively to the latter, whereby said parts are normally locked together.

3. The combination, with an oscillatory bolt
constructed with an annular groove surrounding
its body, of a split ring engaging said
groove and having outwardly-turned hooked
5 ends b' , constituting shoulders, and a shell-
extractor consisting of an elongated metal
body adapted to rest against the side of the
bolt, having an extracting-claw at its front
end and constructed with ribs f^2 , adapted to
10 embrace exteriorly and engage the shoulders

b' of said ring, and thereby to lock the said
extractor to said bolt and to prevent the ex-
pansion of said ring.

In witness whereof I have hereunto signed
my name in the presence of two subscribing 15
witnesses.

PAUL MAUSER.

Witnesses:

HENRY M. HEYMANN,
ARTHUR S. BRADLEY.