

(No Model.)

P. MAUSER.
RING CARTRIDGE EXTRACTOR.

No. 427,587.

Patented May 13, 1890.

FIG. 1.

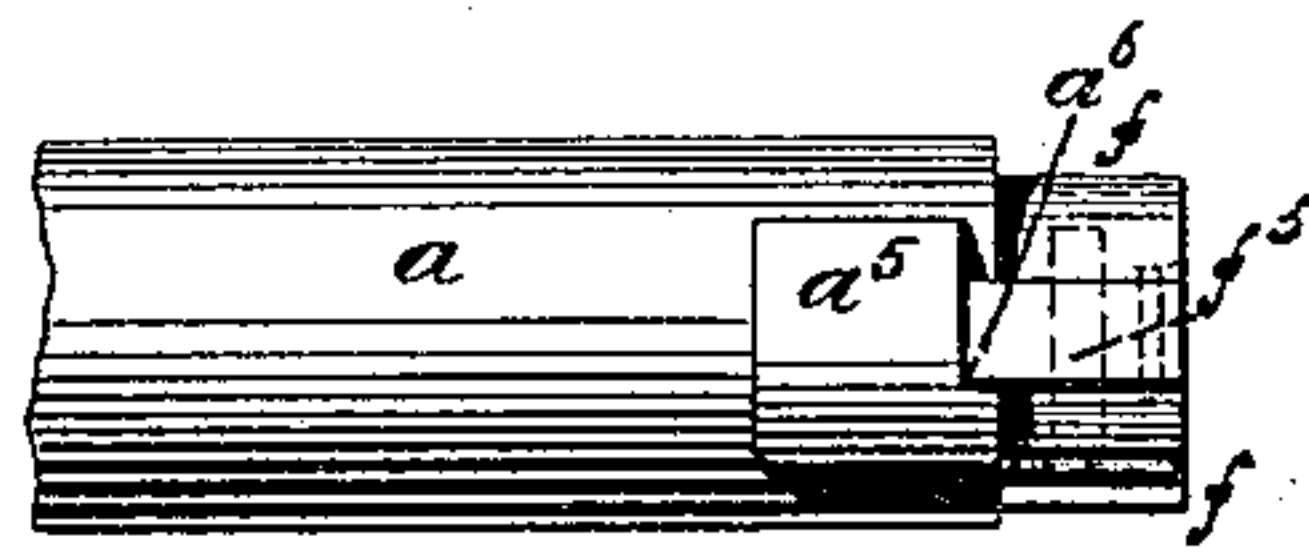


FIG. 2.

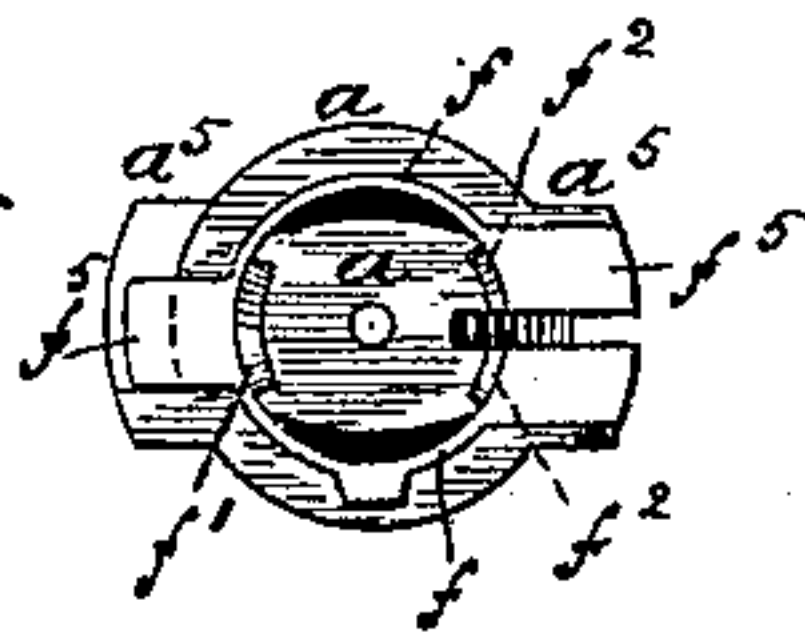


FIG. 3.

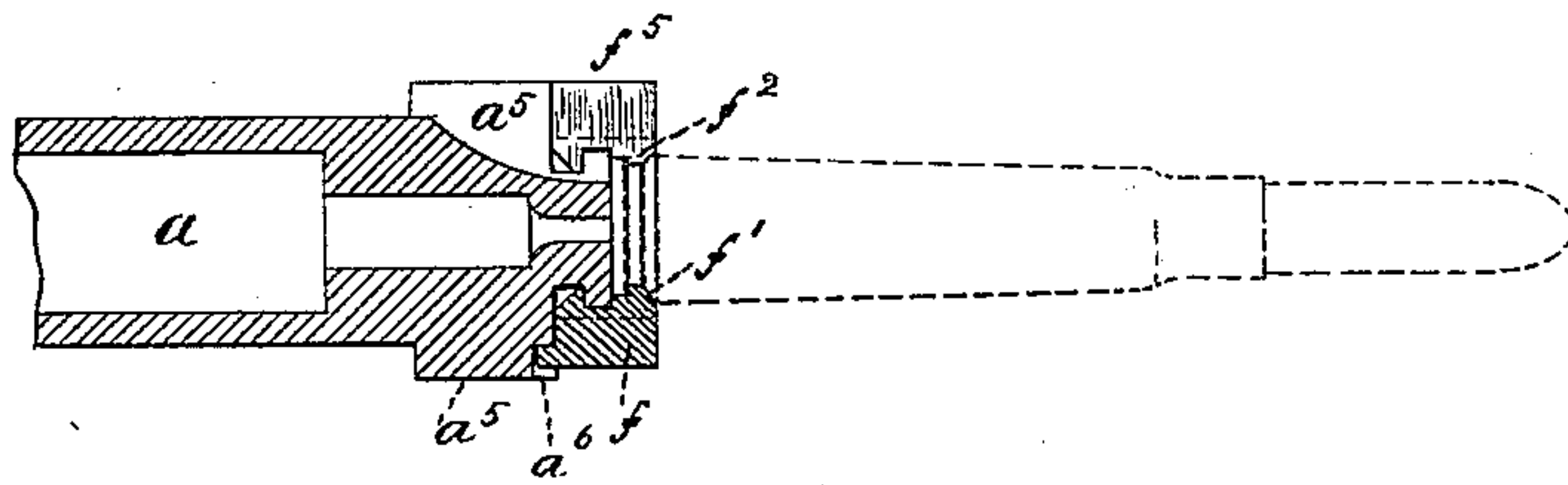


FIG. 4.

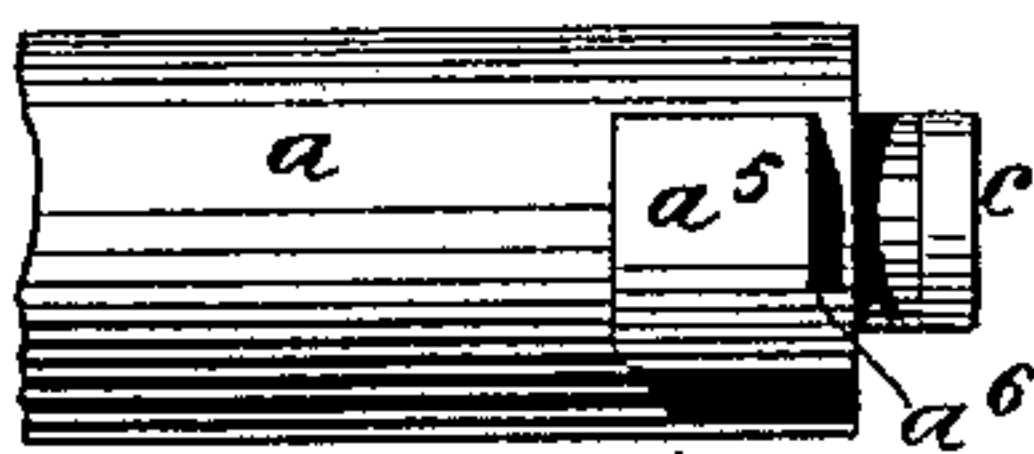


FIG. 5.

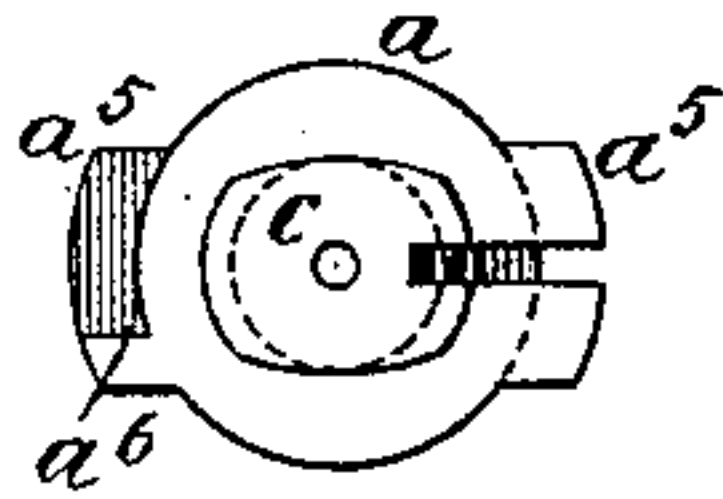


FIG. 6.

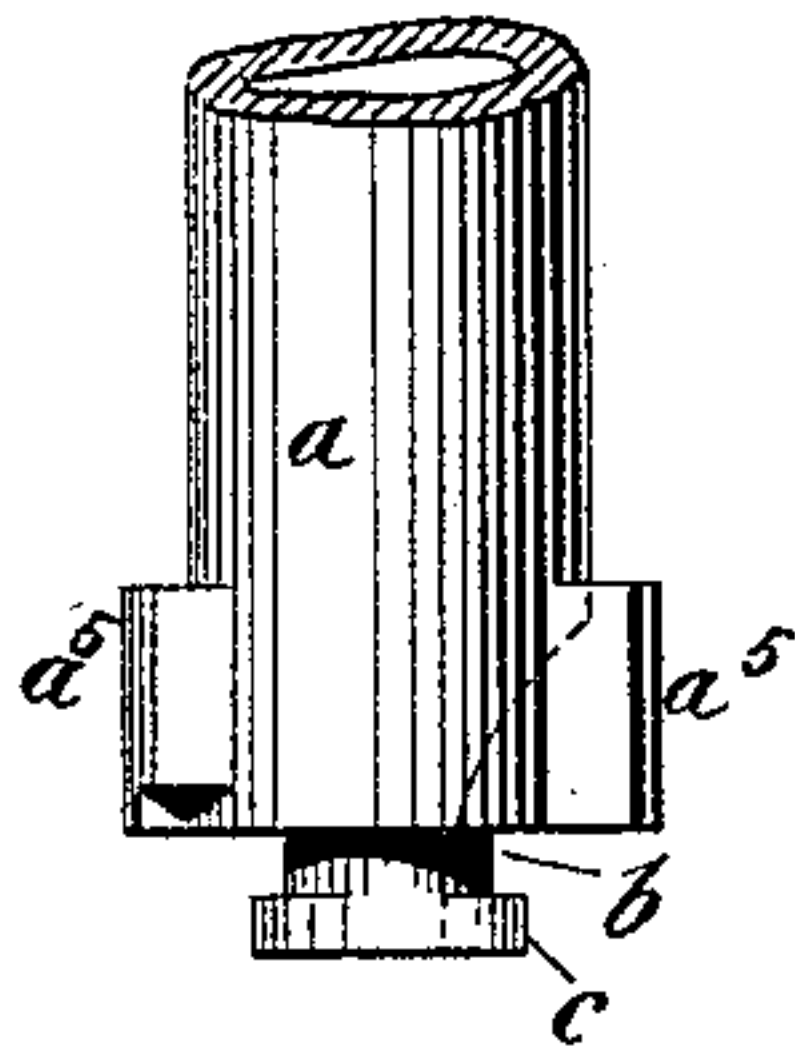


FIG. 7.

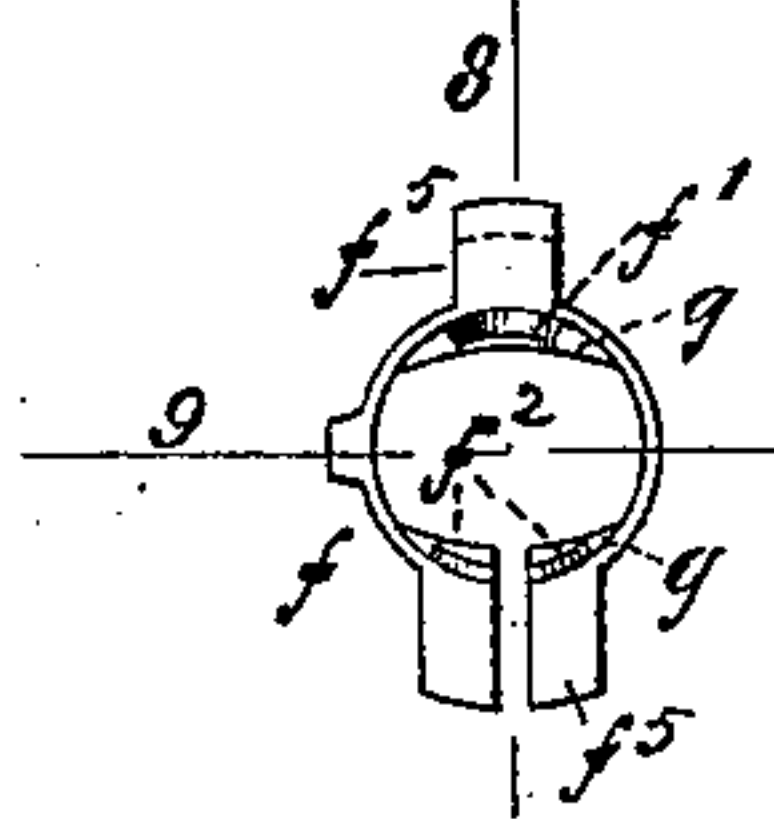


FIG. 8.

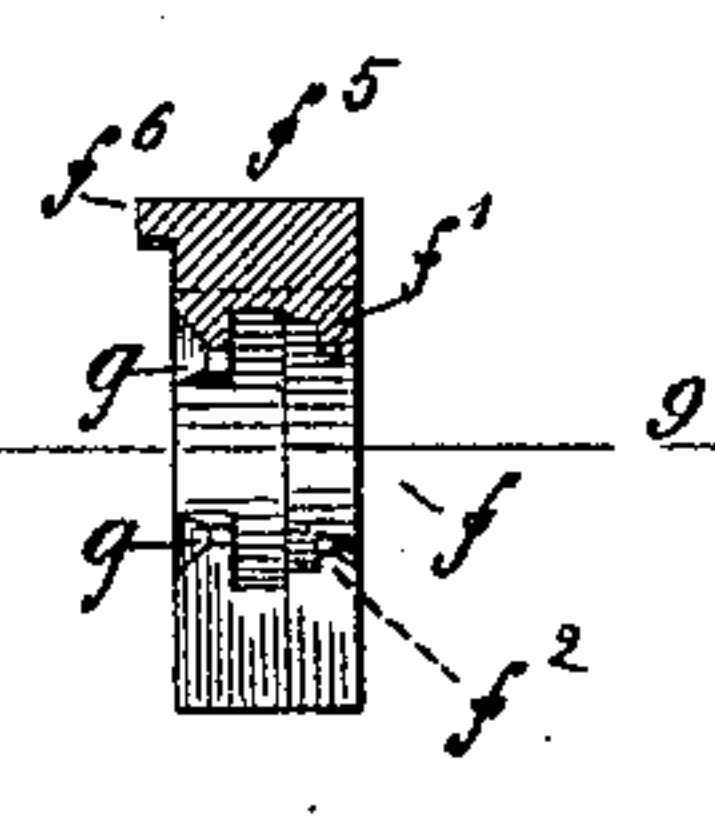
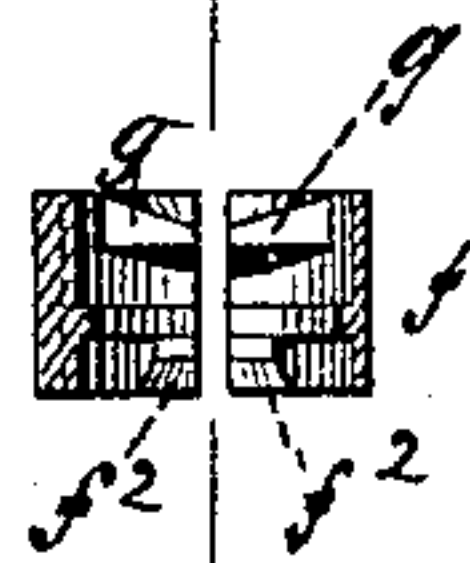


FIG. 9.



WITNESSES:

John Becker
L. K. Fraser.

INVENTOR:

Paul Mauser,
By his Attorneys,

Arthur C. Fraser & Co.

UNITED STATES PATENT OFFICE.

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

RING CARTRIDGE-EXTRACTOR.

SPECIFICATION forming part of Letters Patent No. 427,587, dated May 13, 1890.

Application filed December 4, 1889. Serial No. 332,554. (No model.)

To all whom it may concern:

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

The object of this invention is to provide an improved shell-extractor which is applicable to breech-loading bolt-guns whether the bolt thereof has a separate head or not and whether it is formed with recoil or locking projections at its front end or elsewhere.

In the accompanying drawings my invention is shown applied to a bolt which has no separate head, and which has the usual recoil projections formed at its front end.

Figure 1 is a side view of the front portion of the bolt, showing the new extractor in place. Fig. 2 is a front view of these parts. Fig. 3 is an axial longitudinal section cut horizontally when the bolt is in the position shown in Figs. 1 and 2. Fig. 4 is a side elevation of the front portion of the bolt alone. Fig. 5 is an end view thereof. Fig. 6 is a plan thereof. Fig. 7 is a front view of the extractor-ring. Fig. 8 is a horizontal section thereof on line 8 8, and Fig. 9 is a transverse or vertical section thereof on the line 9 9.

The new extractor has the shape of a ring cut open at one side. The end of the bolt a is reduced in diameter about three-sixteenths of an inch for a distance of about three-sixteenths of an inch back from its end. In the boss thus formed is turned an annular groove b , about three thirty-seconds of an inch wide and about one thirty-second of an inch deep. The head c , left standing at the extreme front end of the bolt, is made elliptical by cutting it away at the two opposite sides down to the bottom of the said annular groove, as shown best in Fig. 5.

The extractor f is a steel ring, measuring about five-sixteenths of an inch in axial direction and turned out internally to correspond with the above-described formation of the end portion of the bolt a and to form internally-projecting annular ribs at its front

and rear sides. The ring is made with two opposite wings f^5 , corresponding with the two opposite recoil projections a^5 on the bolt. The one of these wings which corresponds in position with the recoil projection which is notched for the passage of the ejector, as shown on the upper side in Fig. 3, is also notched for the passage of the ejector, and the notch is cut entirely through the ring, so that it becomes an open or split ring. The other wing f^5 is made smaller. In order that the ring may be applied to the reduced end of the bolt a , its inside rear rib g is cut away at the two opposite sides, so as to produce an elliptical opening similar to the elliptical shape of the extreme front end c of the bolt. The long axis of the ellipse of this opening in the ring is situated at right angles to the wings f^5 , and hence when the ring is applied it is at right angles to the long axis of the ellipse on the end portion of the bolt. To apply the ring to the bolt, it is turned so that its elliptical opening coincides with the elliptical end of the bolt. (Compare Figs. 5 and 7.) The ring is then pushed onto the end of the bolt and is afterward turned thereon for ninety degrees, thereby bringing the portions of the rear rib g of the ring which are not cut away under the portions of the elliptical bolt end c which have been left standing, so that by the engagement of these ribs the ring is prevented from escaping from the bolt in axial direction. When the ring is turned to this position, the notch in its larger wing f^5 coincides with the notch in the recoil projection a^5 , so that the ejector may pass, and its smaller wing f^5 is formed with a slight backward elongation f^6 , which abuts against a shoulder a^6 , formed on the other or unslotted recoil projection a^5 , so that the ring is stopped from turning farther.

The extractor-claw f' is formed by the inner front rib of the extractor-ring, the rest of this rib being cut away, except on the opposite side, where it is left and forms two teeth or projections f^2 , separated by the notch or split in the ring, as clearly shown in Fig. 2. The front portions of the extractor-ring f between the wings f^5 are thin and, the ring being tempered, form springs.

When the bolt a has closed the breech in loading, the claw f' has passed over the rim of the cartridge-base and snapped down in front of it, while the teeth f^2 have also snapped
5 down in front of the rim on the opposite side. When the bolt is drawn back, the cartridge-shell is dragged back with it by the engagement of the claw f' and teeth f^2 until it is ejected by the ejector, which pushes it over
10 the yielding teeth f^2 and whirls it around the claw f' .

In case the bolt a is not formed with recoil projections at its front portion, the wings f^5 of the extractor must be reduced in length
15 in order not to project beyond the bolt.

I claim as my invention the following-defined novel features and combinations, substantially as hereinbefore specified, namely:

1. The combination, with a bolt reduced at
20 its front end, of an extractor consisting of a ring fitting around the reduced end of the bolt and attached thereto and having a claw for engaging the shell.

2. The combination, with the bolt reduced
25 at its front end and with its reduced end grooved, of an extractor consisting of a ring fitting around the reduced end of the bolt and having an internal rib entering the groove therein, whereby it is held against displacement in axial direction, and having a claw for
30 engaging the shell.

3. The combination, with a bolt reduced at

its front end, of an extractor consisting of an elastic ring fitting around and fastened to the reduced end of the bolt, cut open on one side, 35 and having a claw for engaging the shell.

4. The combination, with a bolt reduced at its front end and its reduced end grooved to form a projecting head which is cut away elliptically, of an extractor consisting of a
40 ring internally grooved to admit said head, having its rear inner rib cut away elliptically over said elliptical head, whereby when the ring is so passed over and turned angularly the remaining portions of its rib pass behind 45 and engage the remaining portions of said head, and shoulders on the ring and bolt, respectively, for limiting the further angular movement of the ring.

5. The combination, with a bolt reduced at
50 its front end, of an extractor consisting of an elastic ring cut open on one side, applied to the reduced portion of said head, and fastened thereon, said ring formed with an internal rib beyond the end of the bolt, and said
55 rib partially cut away to leave a claw on one side and teeth on the other side for engaging the shoulder.

This specification signed by me this 2d day of September, 1889.

PAUL MAUSER.

Witnesses:

EDMUND TRONCK,
THEODORE ABENHEIM.