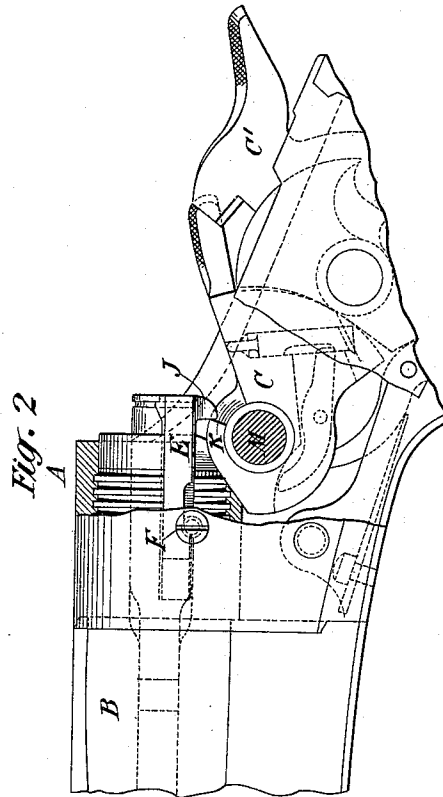
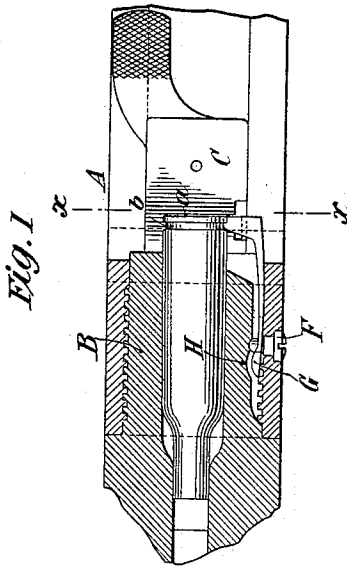
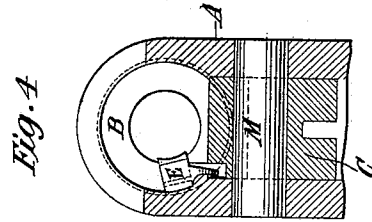
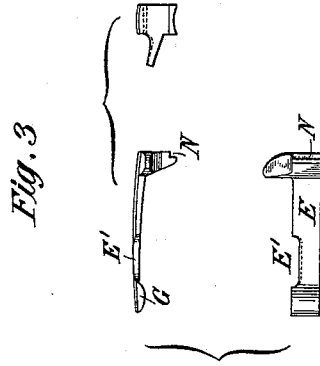


(No Model.)

H. W. BRADLEY.
EXTRACTOR FOR BREECH LOADING FIREARMS.

No. 572,102.

Patented Dec. 1, 1896.



Witnesses:

Raphael Vetter
Edwin B. Hopkinson

Hazen W. Bradley, Inventor

by Kerr, Curtis & Page, Attys

UNITED STATES PATENT OFFICE.

HAZEN W. BRADLEY, OF ILION, NEW YORK, ASSIGNOR TO THE REMINGTON ARMS COMPANY, OF NEW YORK, N. Y.

EXTRACTOR FOR BREECH-LOADING FIREARMS.

SPECIFICATION forming part of Letters Patent No. 572,102, dated December 1, 1896.

Application filed September 12, 1896. Serial No. 605,590. (No model.)

To all whom it may concern.

Be it known that I, HAZEN W. BRADLEY, a citizen of the United States, residing at Ilion, in the county of Herkimer and State of New York, have invented certain new and useful Improvements in Extractors for Breech-Loading Firearms, of which the following is a specification, reference being had to the drawings accompanying and forming a part of the same.

The main object of the improvement which forms the subject of this application is to provide for breech-loading firearms requiring cartridges which have a groove but no projecting flange at the rear end an extractor simple in construction and reliable in its operation. The extractor which I have devised for this purpose I have illustrated herein as applied to the well-known "Remington" type of rifle; but it will be understood that it may be used also in any breech-loading rifle or small-arm in which the relations of the breech-block to the breech end of the barrel are substantially the same so far as concerns the movements occurring in the operations of inserting the cartridge and withdrawing the empty shell. As applied, however, to the Remington rifle the improved extractor may be generally described as consisting of a curved spring strip or blade lying in a groove in the body or shell of the barrel of the gun at the breech end of the barrel and prevented from complete withdrawal therefrom by a pin or screw passing through the groove and engaging with a suitable notch or groove in the extractor. The said spring-strip is formed with a head which in its normal position fits into a recess at the edge of the cartridge-chamber and is provided with a toe or projection that enters a groove in the breech-block, so that it will be withdrawn from its groove in the barrel by engagement with the end of the groove in the breech-block just before the latter has been fully retracted and will be forced back into position by the breech-block itself in the forward movement of the same.

The head of the extractor is formed with a lip, rounded on its front edge, but squared on its rear edge, so that when a cartridge is inserted in the breech end of the barrel and the breech-block forced home the head of the extractor will be pushed beyond the groove in

and near the end of the cartridge and caused by its resilience to engage therewith.

The specific construction of the extractor and its mode of operation are illustrated in the accompanying drawings.

Figure 1 is a longitudinal section of the breech portion of a rifle on a horizontal plane; Fig. 2, a similar section on a vertical plane; Fig. 3, views of the extractor in different positions, and Fig. 4 a cross-section of the rifle on line *xx* of Fig. 1.

B is the barrel, which is screwed into the frame A.

C is the breech-block, turning on a pivot M, and C' is the hammer.

In the side of the barrel B, within the frame A, is a groove in which lies the extractor E, which is a steel blade formed with a lug G at one end and a head at the rear end, which, when the extractor has been forced home into the groove, fills up an enlargement of the groove in the end of the barrel and completes the rim of the cartridge-chamber.

In the side of the extractor E is a notch E' or groove, through which passes a pin or screw F, set in the frame and entering the side of the barrel and serving to limit the forward movement of the extractor. From the head of the extractor extends a toe J, which enters a groove in the hub of the breech-block, so that when the latter is retracted the shoulder K at the end of the groove engages the toe J and withdraws the extractor.

The cartridge is formed in a well-known manner with a head *a* of the same diameter as the body of the shell and a groove *b* immediately in front of it. To fit and engage with this groove, the head of the extractor E is formed, as shown in Fig. 3, with a projection N, rounded on one side and squared on the other, and at such distance from the rear end of the extractor that when the cartridge and extractor are forced home in the barrel the rear ends of both cartridge and extractor will be flush with the breech end of the barrel.

In the groove in the barrel containing the extractor is a recess H, into which the lug G enters under the spring action of the curved extractor when it is withdrawn to its fullest extent.

When the breech-block is drawn back, a

cartridge is pushed into the breech-chamber. The breech-block is then forced forward to close the breech end of the barrel and to force the cartridge home if it still projects. In its forward movement the breech-block encounters the end of the extractor and pushes it into the groove in the barrel. When the rounded projection N on the extractor encounters the edge of the end of the cartridge, it slips over the same either before or after the cartridge is fully within the barrel. This is permitted by the resilience of the extractor and by a small space in the groove which is left for the side play of the head, and the spring-tension of the extractor and shape of the groove then serve to keep the former in firm engagement with the cartridge.

When, after engagement of the extractor with the grooved cartridge, the breech-block is again drawn back, the extractor, after a certain movement of the breech-block, is drawn out, bringing with it the cartridge or empty shell. When the lug G comes opposite the depression H at the extreme outward movement of the extractor, the said lug, being raised by spring action, enters the recess and permits the extractor to disengage itself from the shell, which is then withdrawn by hand.

I am aware that spring-extractors which are arranged to be forced inward and to slip by and engage with a cartridge-head are not broadly new, but my improvement resides in the details of construction and arrangement of the devices shown for this purpose.

What I claim is—

1. The combination with the frame of a fire-arm and the barrel secured thereto, of an extractor composed of a curved spring-blade having a projection thereon contained in a groove in the barrel, a breech-block containing a groove with which the projection on the extractor engages, the groove containing the extractor being enlarged to permit the head of the extractor to slip by and engage with a groove in the cartridge when forced home by the breech-block, as set forth.

2. The combination with a gun-barrel, of a curved spring-extractor contained in a groove in the barrel, said groove being provided with a recess into which the end of the extractor enters at its limit of outward movement and permits the head of the extractor to disengage itself from the cartridge, as set forth.

3. The combination with a gun-barrel, of a spring-blade constituting an extractor contained in a groove, the said blade being formed with a lug G at one end and a head adapted to engage with a groove in the cartridge, the groove in the barrel being formed with a recess to receive the lug when the extractor is withdrawn, and permitting a sufficient side movement or play of the extractor, whereby the head of the latter will slip by and engage with the groove in the cartridge when forced home by the breech-block and disengage itself therefrom by spring-tension when withdrawn, as set forth.

HAZEN W. BRADLEY.

Witnesses:

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