

Feb. 8, 1949.

A. WEISS
EJECTOR FOR FIREARMS
Filed July 27, 1939

2,460,862

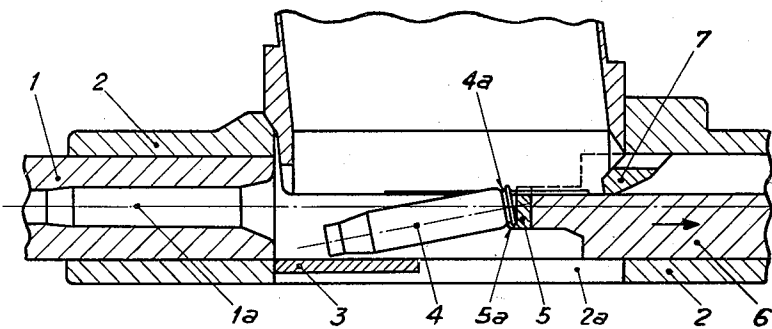


Fig. 1

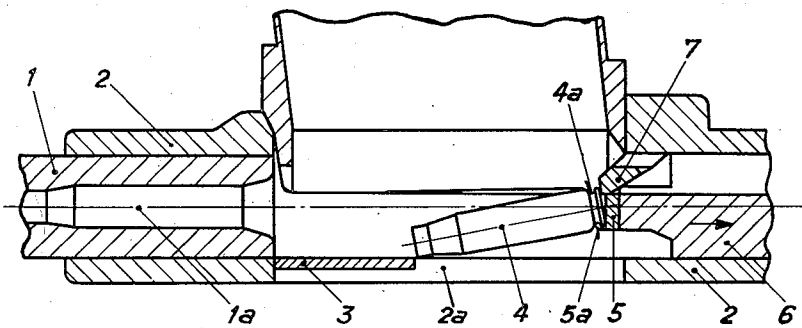


Fig. 2

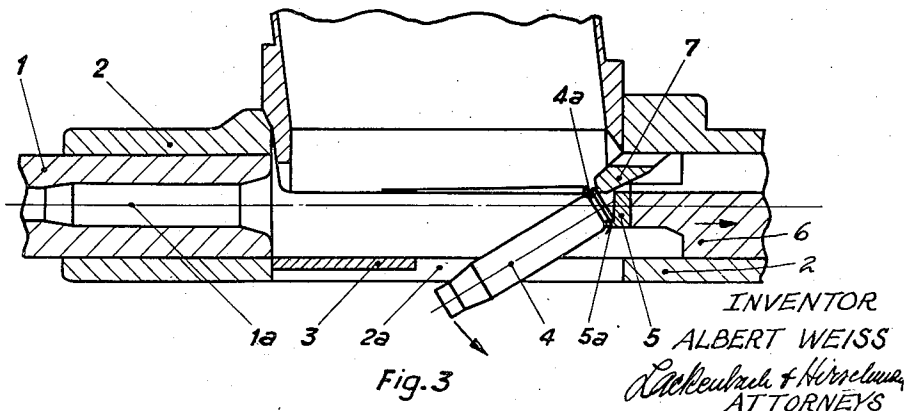


Fig. 3

UNITED STATES PATENT OFFICE

2,460,862

EJECTOR FOR FIREARMS

Albert Weiss, Zurich, Switzerland, assignor to
Machine Tool Works Oerlikon Administration
Company, Zurich-Oerlikon, Switzerland, a
company of Switzerland

Application July 27, 1939, Serial No. 286,785
In Switzerland August 5, 1938

Section 3, Public Law 690, August 8, 1946
Patent expires August 5, 1958

4 Claims. (Cl. 42—25)

1

In fire-arms firing on the forward stroke, particularly of the mass or inertia locked type, it is impossible for reasons connected with the locking system itself to extract the cartridge shell from the weapon by means of the usual resilient extractors. It has, therefore, been necessary to entrust the function of extraction to a so-called claw, that is to say a lip-shaped projection of the breech-block head engaging below the rim of the cartridge shell. This lip-shaped projection, however, is incapable alone of holding the shell to be ejected on the breech-block but on the contrary it is only able to engage the shell on one side. With this lip-shaped projection alone, therefore, the shell, which during the recoil of the breech-block may have a tendency to drop out of the claw under the influence of lateral forces or in consequence of its own weight, cannot be carried with certainty to the ejector and hence removed from the weapon. It has been attempted to overcome this difficulty, for example, by employing two resilient cartridge shell gripping members provided above the claw and on the right and left sides on the breech-block head. This construction, besides being rather complicated, however, cannot be used to an unlimited extent.

The present invention relates to a novel construction of the breech casing guiding the breech-block body, in which the above-mentioned disadvantages are eliminated by the fact that the breech casing is provided with a cross-piece extending immediately behind the cartridge chamber transversely to the shell ejecting direction, and the cartridge shell being released from engagement by the claw is supported at its forward edge on said cross-piece until the breech-block has carried the shell directly against the ejector.

In the accompanying drawing which shows, by way of example, one embodiment of the invention:

Figure 1 shows the position of the cartridge shell upon being extracted from the cartridge chamber,

Figure 2 shows the cartridge shell at the moment of coming into contact with the ejector, and

Figure 3 shows the cartridge shell in the tilted position during ejection.

1 is the barrel fixed in the breech casing 2. 1a is the cartridge chamber at the rear end of the barrel. The breech block 6 with a lip-shaped projection or claw 5 is longitudinally movable in the breech casing 2. Immediately behind the car-

2

tridge chamber 1a is a cross-piece or plate 3 covering a part of the existing ejection slot 2a in the breech casing 2. The cartridge shell 4 is provided at its rear end with a groove 4a into which a lip 5a of the claw 5 is adapted to enter. An ejector for the shells is shown at 7, and as will be seen from the drawing, the ejector is removed from the chamber 1a by a distance considerably greater than the length of the shell.

10 The operation of the device is as follows: When after firing a shot the breech-block 6 has started to recoil and at the same time extracted the cartridge shell 4 from the cartridge chamber 1a, the shell is as yet only held by the lip 5a of the claw. This support is however not sufficient in every case to hold the cartridge shell 4 in position in the breech-block-axis. Under the action of gravity and also of the one-sided pull on the cartridge shell rim 4a, as the lip or extractor 5a engages in the groove 4a at its lower portion, cartridge shell 4 sometimes moves with its front end in a direction towards the ejection slot 2a. This movement is stopped by the cross-piece 3 before the cartridge shell 4 is able to become released from the engagement by the claw lip 5a. Premature jumping of the cartridge shell 4 out of the claw 5 is thereby prevented. For the satisfactory operation of the type of fire-arm shown, all the cartridge shells must abut against the ejector 7 and receive from the latter an impact expelling the cartridge shell which tilts downwardly out of the breech casing.

35 Figure 2 shows the position of the parts at the moment at which the front end of the cartridge shell has left the cross-piece 3 and the base of the cartridge has reached the ejector 7.

The distance of the cross-piece from the longitudinal axis of the fire-arm determines the angle of inclination which the cartridge shell assumes after leaving the cartridge chamber upon the recoil of the breech-block. For requirements of reliability of withdrawal by the claw, the above-mentioned distance should not exceed one-quarter of the length of the cartridge shell.

45 In order to hold the cartridge shell 4 as long as possible in the position maintained by the cross-piece 3, the length of the cross-piece is proportioned so that the distance from the end edge of the cross-piece to the tip of the ejector only slightly exceeds the length of the cartridge shell. The short distance over which the cartridge shell, released by the cross-piece, travels until it abuts against the ejector does not permit any substantial alternation in the position of the shell, so that

3

it also reaches the ejector in the same position in which it slides along the cross-piece.

It is possible, in place of a separately inserted cross-piece to construct the breech casing in such a manner that its wall performs the function of the cross-piece.

Having now particularly described and ascertained the nature of the said invention and in what manner the same is to be perforated, I declare that what I claim is:

1. In a fire-arm, a breech casing, a barrel supported in said casing and having a cartridge chamber dimensioned to receive a cartridge of a given shell length, a breech-block movable toward and away from said chamber, said breech-block having means for releasably engaging a cartridge shell, an ejector spaced rearwardly of the chamber by a distance considerably greater than the length of the cartridge shell, and a cross-piece positioned behind the cartridge chamber and parallel to the longitudinal axis of the barrel and transversely to the direction of ejection of the cartridge shell for supporting the forward edge of the latter as it is withdrawn by the breech-block, there being an opening at the bottom of the breech casing to the rear of the cross-piece and below the ejector for the downward discharge of the shell, and the distance between the rear edge of the cross-piece and the ejector being sufficient to enable the cartridge shell to fall through said opening, but being of such reduced extent that the cross-piece underlies the forward edge of the shell up to substantially the moment that the shell strikes the ejector.

2. A fire-arm as claimed in claim 1, wherein the distance of the cross-piece from the longitudinal axis of the weapon is at the most one-quarter the length of the cartridge shell.

3. In a fire-arm, a breech casing having a forward and a rear section, a barrel positioned in the forward section of the breech casing and having a cartridge chamber dimensioned to receive a cartridge of a given shell length, a stationary ejector in the rear section of said breech casing and above the longitudinal axis of the barrel, a breech block slidably positioned within said breech casing, means on the breech block for releasably engaging the bottom rear edge of a cartridge shell, and a supporting member extending parallel to the longitudinal axis of the barrel and positioned behind the cartridge chamber in the forward section of said breech casing and at a level below the cartridge chamber for limiting the downward drop of the free end of the with-

4

drawn shell, the breech casing having an opening in its bottom between the rear edge of the supporting member and the ejector for the discharge of the cartridge shells, the distance between said edge and the ejector being such that the member underlies the forward edge of a withdrawn shell up to substantially the moment that it strikes the ejector.

4. In a fire-arm, a breech casing, a cartridge chamber in said casing, said chamber being dimensioned to receive a cartridge of a given shell length, a stationary ejector member in said breech casing positioned rearwardly of the cartridge chamber and above the longitudinal axis thereof, a breech-block slidably positioned within said breech casing, said breech-block having a single claw extractor member arranged to engage the bottom rear edge of a cartridge shell, and a cross-piece positioned transversely to the direction of ejection of a cartridge shell and below the level of the cartridge chamber, the rear edge of the shell projecting above the breech block and said cross-piece being arranged for supporting the forward end of the tilted cartridge shell during its extraction until the breech block has carried the shell rearwardly into contact with the ejector member, the ejector member engaging the upper portion of the rear face of the shell and thereby causing the shell to tilt downwardly with the extractor member as a pivot, the breech casing having an opening in its bottom between the supporting member and the ejector for the discharge of the cartridge shells, the distance between said edge and the ejector being such that the member underlies the forward edge of a withdrawn shell up to substantially the moment that it strikes the ejector.

ALBERT WEISS.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
177,030	Taylor	May 2, 1876
314,823	Franklin	Mar. 31, 1885
454,403	Odkolek	June 16, 1891
1,041,410	Benet et al.	Oct. 15, 1912
1,144,285	Becker	June 22, 1915
1,202,024	Browning	Oct. 24, 1916
1,371,351	Casseta et al.	Mar. 15, 1921
1,402,564	Bourdelles	Jan. 3, 1922
2,231,978	Wesson	Feb. 18, 1941