



## UNITED STATES PATENT OFFICE

2,479,844

CARTRIDGE EXTRACTOR, ESPECIALLY FOR  
ONE-SHOT FIREARMS

Josef Koucký and František Koucký, Prague, Czechoslovakia, assignors to Zbrojovka Brno, Národní podnik, also named Brno Arms Factory, National Corporation, Brunn, Czechoslovakia, a corporation of Czechoslovakia.

Application November 19, 1947, Serial No. 786,832  
In Czechoslovakia November 21, 1946

7 Claims. (Cl. 42—25)

1.

Our invention relates to improvements in breech-loading firearms and more particularly in firearms having a longitudinally movable breechblock with a cooperating longitudinally movable extractor for withdrawing spent cartridge shells from the cartridge chamber in the barrel.

The known firearms of said type have many disadvantages. Thus, for example, they require either that the cartridges are introduced by hand into the cartridge chamber in the barrel, or they require the use of other than cylindrically shaped breechblocks which are less dependable in function and more difficult to manufacture.

The object of our invention is to avoid the said and other disadvantages and to create a firearm which is simple in construction without impairing its dependability.

The novel features which we consider characteristic of our invention are set forth with particularity in the appended claims. The invention itself, however, both as to its organization and its method of operation, together with additional objects and advantages thereof, will best be understood from the following description of a specific embodiment when read in connection with the accompanying drawing in which

Fig. 1 is a longitudinal section through the pertinent parts of the firearm with the breechblock in loading position, and

Fig. 2 is the same longitudinal section with the breechblock in locked position.

The breechblock 1 which contains the firing pin 2 and its driving spring 3 is placed within the casing 4 and may longitudinally move therein forth and back between the loading position shown in Fig. 1 and the locked position shown in Fig. 2. The said casing 4 is joined to the barrel 5 which contains the chamber 11 into which the cartridge is introduced before firing. The breechblock 1 cooperates in a manner known per se with an extractor 6 which is situated in a notch 18 of the casing 4 moving therein longitudinally forth and back between the positions shown in Figs. 1 and 2. To this effect the extractor 6 is provided with a sear 7 which extends into the longitudinal notch 8 of the breechblock 1. The extractor 6 is equipped with the usual lip 9 which has an inclined front face and cooperates with the rim of the cartridge shell as shown in Fig. 2 withdrawing the shell from the cartridge chamber 11 after firing.

The main improvement according to our invention consists therein that the extractor 6 is extended beyond said lip 9 to form a support and conveyor 10 for the cartridge to be introduced

2

into the chamber 11. This conveyor 10 in the loading position of the arm as shown in Fig. 1 is situated in front of the cartridge chamber 11 and during its forward movement into the firing position shown in Fig. 2 slips into the recess 13 arranged in the barrel 5 below said chamber 11. The front edge of said recess 13 is chamfered, preferably parallel to the inclined front face of the lip 9, contains the usual indentation or groove for the lip 9, and cooperates with the identically chamfered front edge 14 of the conveyor 10, thus facilitating its introduction into the recess 13.

The extractor 6 is charged by the spring 15 which also supports, and even may completely replace, the action of the usual trigger spring. This spring 15 holds and guides the extractor 6 in the casing notch 18 and assures not only the proper action of the extractor 6 with its lip 9, but also the cooperation of the sear 7 with the breechblock 1 and with the recess 19 in the striking pin 2. The said spring is preferably a leaf spring, as shown, and forms, as said above, the support and guide for the extractor 6 which is otherwise freely situated in a notch 19 in the bottom of the casing 4.

The extractor 6 is in permanent connection with the trigger 12 whose arm 17 extends into grooves 16 of the extractor. In the shown embodiment the arm 17 is forked and each prong engages one of a pair of grooves 16 arranged on each side of the extractor 6.

The described mechanism operates as follows:

In the loading position shown in Fig. 1 the chamfered face 14 of the conveyor 10, which forms part of the extractor 6, abuts against the identically chamfered ridge of the recess 13 arranged in the barrel 5, and the sear 7 catches with the recess 19 of the firing pin 2. A cartridge is placed upon the conveyor 10 which is accordingly shaped for example guttered. The breechblock 1 while moving forward from the position shown in Fig. 1 to that shown in Fig. 2 takes along the extractor 6, its conveyor part 10 slides into the recess 13 and the lip 9 pushes the cartridge into the chamber 11 until said lip 9 slips behind the rim of the cartridge shell (Fig. 2). At the same time the sear 7, which engages the recess 19 of the firing pin 2, effects a compression of the firing pin spring 3 which is released and the firing effected when the trigger 12 is pulled. Thereafter the returning breechblock 1 cooperates again with the sear 7 causing the extractor 6 to move back into the position shown in Fig. 1. During this return movement the lip 9 withdraws the cartridge shell from the chamber 11, the

3

conveyor 10 returns to its original position (Fig. 1) to receive another cartridge and the sear 7 rebounds into the recess 18 of the firing pin 2.

Although we have shown and described a certain specific embodiment of an invention, we are fully aware that many modifications thereof are possible. Our invention, therefore, is not to be restricted except insofar as is necessitated by the prior art and by the spirit of the appended claims.

What we claim as our invention is:

1. In a breech-loading firearm the improvement comprising in combination, a barrel, a cartridge chamber in said barrel, a longitudinally movable breechblock, a firing pin arranged in said breechblock, a longitudinally movable extractor cooperating with the breechblock, a lip on said extractor to engage the rim of the cartridge shell and to withdraw the same from the cartridge chamber, the extractor extending beyond said lip and abutting the cartridge chamber in loading position, said extractor extension forming a conveyor for the cartridge to be introduced into the chamber, and a recess in the barrel below the cartridge chamber to receive the extractor extension while the breechblock is locked.

2. In a breech-loading firearm according to claim 1 the improvement comprising a sear on the rear end of the extractor, a longitudinal notch in the breechblock cooperating with said sear, a recess in the firing pin, said recess being engaged by said sear in cocked position and a trigger mechanism effecting the disengagement of said sear from said recess.

3. A breech-loading firearm according to claim 1 in which the front face of the conveyor part of the extractor and the opposing edge of the barrel are conformingly chamfered, the said chamfered front face of the conveyor and the said chamfered edge of the barrel abutting while the breechblock is in the loading position.

4. A breech-loading firearm according to claim 1 in which the front face of the conveyor part of the extractor and the opposing edge of the

4

barrel are conformingly chamfered, the said chamfered front face of the conveyor and the said chamfered edge of the barrel abutting while the breechblock is in the loading position, and the front face of said extractor lip being also conformingly chamfered to abut the said chamfered barrel edge when the said conveyor part is in forward position.

5. In a breech-loading firearm the improvement comprising in combination, a barrel, a cartridge chamber in said barrel, a longitudinally movable breechblock, a casing for said breechblock, a firing pin arranged in said breechblock, a longitudinally movable extractor cooperating with the breechblock, a lip on said extractor to engage the rim of the cartridge shell and to withdraw the same from the cartridge chamber, the extractor extending beyond said lip and abutting the cartridge chamber in loading position, said extractor extension forming a conveyor for the cartridge to be introduced into the chamber, a recess in the barrel below the cartridge chamber to receive the extractor extension while the breechblock is locked, a sear on the rear end of the extractor, a longitudinal notch in the breechblock cooperating with the sear and a recess in the firing pin also cooperating with said sear, a longitudinal notch in the breechblock casing to receive the extractor and to permit its longitudinal movements, a spring pressing upon the extractor and effecting the engagement of the sear with the recess in the firing pin, and a trigger mechanism effecting the disengagement thereof.

6. A breech-loading firearm according to claim 5 wherein the spring is a leaf spring forming a guide and support for the moving extractor.

7. A breech-loading firearm according to claim 5 wherein the extractor has at least one longitudinal groove into which engages an arm of the trigger mechanism.

JOSEF KOUCKÝ.

FRANTIŠEK KOUCKÝ.

No references cited.