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EXTRACTOR MECHANISM FOR FIREARMS

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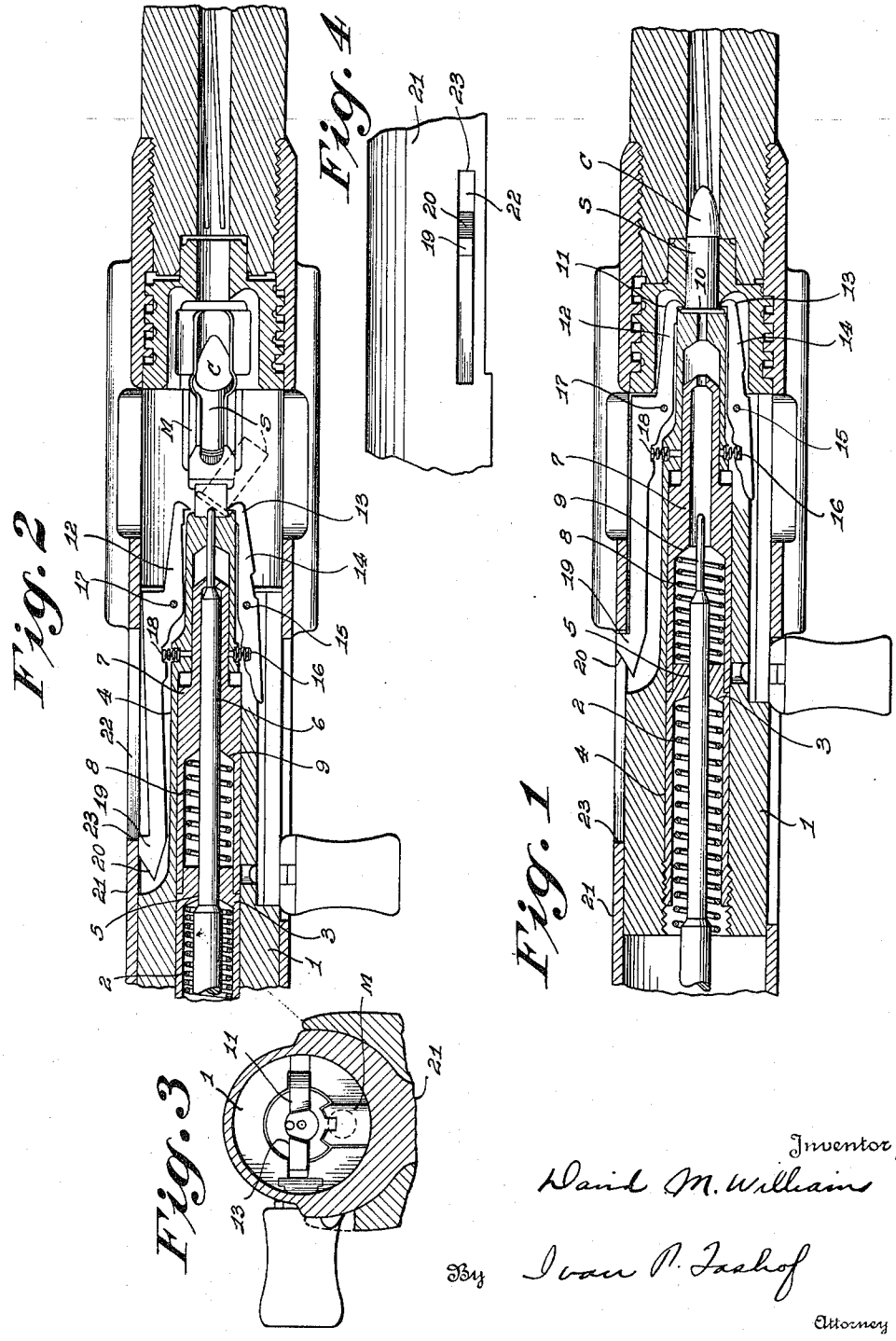


Fig. 2

Fig. 4

Fig. 1

Fig. 3

Inventor,
David M. Williams
By Ivan P. Fashof
Attorney

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EXTRACTOR MECHANISM FOR FIREARMS

David M. Williams, Godwin, N. C.

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5 Claims. (Cl. 42—25)

The present invention relates to firearms and more particularly to a novel extractor mechanism therefor.

The extractor mechanism, as commonly used in present day rifles and other firearms, comprises either a single extractor or a pair of extractors. In the case of the gun having two extractors, these are usually termed the "right hand extractor" and "left hand extractor," respectively.

In the usual gun having two extractors, the left hand extractor does not have a positive engaging hook for the rim of the cartridge. In other words, the right hand extractor has a positive hook, which makes a positive engagement with the rim of the cartridge and functions to extract or withdraw the cartridge from the bore. The engagement of the left hand extractor, however, with the rim of the cartridge is a mere frictional engagement, since the left hand extractor usually has a sloping or negative hook and does not make a positive engagement with the rim of the cartridge.

The reason that the left hand extractor does not have a positive hook in a gun of the aforementioned type, is to enable the ejector to push the shell out of engagement. Upon the ejector pushing the shell, the shell slides out of engagement with the negative hook of the left hand extractor and pivots about and away from the positive hook of the right hand extractor. It may, therefore, be seen that in this arrangement, the shell is only firmly held by one extractor, and the extraction is not as positive as may sometimes be desired. In a firearm in accordance with the present invention, two extractors, each having a positive hook, are provided, the provision of two extractors each having a positive hook means for engaging the rim of a cartridge gives in addition to a balanced pull upon the head of the cartridge, about double the extraction effort as compared to a gun having two extractors, one of which has a negative hook means. Also, the chances of a malfunction due to the fired shell or cartridge becoming lost or removed from the grasp of the extractors before being struck or acted upon by the ejector is eliminated.

It is one of the objects of the present invention, therefore, to provide a more positive means for extracting the shell from the bore of a firearm.

Another object of the present invention is to provide a firearm having a pair of extractors, both of which have a positive hook engagement with the rim of a cartridge.

Still another object of the present invention is to provide means for disengaging one of the extractors from a cartridge rim in order to allow ejection thereof by the ejector.

A fourth object of the invention is to provide cam means for disengaging one of the extractors of a firearm from the cartridge rim.

Other objects of the invention will be apparent from the disclosure as hereinafter set forth.

Referring to the accompanying drawing:

Figure 1 is a longitudinal section of a portion of a firearm showing the cartridge in position ready to fire.

Figure 2 is a longitudinal section of a firearm in open position during ejection.

Figure 3 is a section of a firearm showing the face of the bolt with the cartridge removed.

Figure 4 is a side elevation of a portion of a gun receiver according to this invention, illustrating the lug and slot cooperation.

Referring to Figure 1 of the drawing, 1 represents a firearm bolt held in a closed position by a spring 2 bearing against the face 3 of element 4 carried by the bolt. The bolt has a central aperture indicated at 5 in which is slidably arranged an ejector 6. Mounted in the bolt is a striker 7 which in the position shown in Figures 1 and 2, is urged in a forward direction by a striker spring 8, bearing against the face 9 of the striker. It may be noted that the striker nose is not shown in any of the figures of the drawing, since this application is not concerned with the type of striker used. It may be assumed that the gun is provided with a suitable striker for firing the cartridge.

In Figure 1, a cartridge indicated in general at C and provided with a shell S is shown in position in the chamber of the firearm. In this position, the rim 10 of the cartridge is engaged on one side by hook 11 of left hand extractor 12 and on the other by hook 13 of right hand extractor 14, and the rim 10 of the cartridge is seated against the front end of the bolt 1. Right hand extractor 14 is pivoted on a pin 15 carried by the bolt and is urged to engaging position by a spring 16. Left hand extractor 12 is similarly pivoted on a pin 17 carried by the bolt and is similarly urged to engaging position by a spring 18.

The end of the extractor 12 remote from the hook carries a cam lug 19 provided with a cam face 20 constructed and arranged to engage the receiver 21 at the rear end of slot 22 at point 23, as shown in Figure 4.

Figure 2 shows a gun similar to Figure 1 during ejection of the shell. In this figure, the car-

tridge has been fired and the empty shell has been extracted from the chamber. The empty shell S is indicated in dotted lines. It may be noted that the left hand extractor 12 has been disengaged from the shell by the camming action of the lug 19 against receiver 21 and that the lug is shown in depressed or inside position relative to the receiver 21.

Referring further to Figure 1, the cartridge C and shell S are shown in position in a chamber of a gun ready to fire. It is assumed that the striker shown at 7 is provided with a point for firing the cartridge and that the striker is held in a cocked position, as shown in Figure 1, by a suitable sear and trigger. It may be noted that in the position shown in Figure 1, both extractor hooks 11 and 13 grasp the cartridge rim 16. Upon firing of the cartridge, the bolt 1 is forced back carrying both the right hand extractor 14 and left hand extractor 12 in a rearward direction. As before pointed out, these extractors are carried and pivoted on pins 15 and 17 on the bolt.

Towards the end of the rearward movement, the cam face 20 of the lug 19 engages point 23 of the receiver at the rear end of the slot 22. This moves the rear end of the extractor 12 in an inward direction, and the hook of the extractor 12, is, therefore, disengaged from the cartridge rim 16. The disengaged position of extractor 12 is shown in Figure 2. It may be noted, however, that this disengagement does not take place until just before the ejector 6 has come into contact with the base of the shell which has been carried rearwards against the ejector by the bolt and extractors. Continued rearward motion of the bolt causes the point of the ejector to protrude through the end of the bolt and the shell is thus caused to pivot around and away from the right hand extractor 14, since as before stated, the left hand extractor 12 has been disengaged from the rim of the cartridge just prior to this point. It may be noted that the action of the ejector is sufficiently fast during the gun operation to throw the shell clear of the gun in the usual manner.

It may be further noted that although in the device as shown in the drawing and heretofore described, two extractors are shown, one of which is detachable from the cartridge rim, it is within the scope of the present invention to provide more than two extractors. Preferably, where more than two extractors are provided, they are spaced so as to exert a balanced pull on the shell and all or one of them are capable of being moved to a shell-releasing position. In some instances, it may be desirable to provide a releasable positive hook extractor in combination with and in addition to the usual left hand negative extractor well known in the art. These and other modifications are well within the scope of the present invention, as obviously the cam released positive hook extractor herein disclosed may take various forms and may be combined with any of the extractors well known in the art. It is also within the scope of the present invention to provide a gun of the forward sliding barrel type with a releasable extractor. In such event, the barrel or chamber will move away from the extractor, and the extractor will be similarly released just prior to ejection.

This application is a division of my prior application Serial No. 514,252, filed February 7, 1931, which has matured into Patent No. 2,090,656, dated August 24, 1937.

I claim:

1. I. In a gun, the combination with extractor means, shell engaging members carried by said extractor means, ejector means, means on a stationary portion of said gun for moving the extractor means to a shell-releasing position slightly in advance of the shell-ejecting action of the ejector means, said means for moving the extractor means being entirely independent of the ejector means.

2. In a gun having the usual receiver and ejector, the combination with extractor means, shell engaging members carried by said extractor means, said shell engaging members comprising a plurality of positive hook means, means independent of said ejector for moving the extractor means to a shell releasing position slightly in advance of the shell ejecting action of the ejector, said means comprising a cam carried by said extractor means and a stationary shoulder on the receiver of the gun cooperating therewith.

3. In a gun having the usual receiver and ejector, the combination with extractor means, shell-engaging members carried by said extractor means, said shell-engaging members comprising a plurality of positive hook means, and means for moving the extractor means to a shell-releasing position slightly in advance of the shell-ejecting action of the ejector including means for moving one of said hook means out of shell-engaging position, said last mentioned means comprising a portion of said receiver spaced from and independent of the ejector.

4. In a gun of the kind described, a receiver, a bolt slidably mounted in said receiver, an ejector pin mounted in said bolt and arranged to permit sliding movement of the bolt thereon, said ejector pin having its forward end projecting forwardly of the bolt upon full retraction of the latter, a pair of extractor levers pivoted to the bolt and having forwardly projecting cartridge engaging hook noses, springs urging said noses toward each other, said receiver having a slot extending longitudinally of the receiver, said slot having a shoulder at its rear end, and a cam lug on one of the levers sliding in the slot and engageable with said shoulder upon retraction of the bolt to move the lever to cartridge releasing position against the action of the respective spring.

5. In a gun having the usual receiver, ejector and chamber, extractor means for removing the shell out of the chamber, shell-engaging members carried by said extractor means including a plurality of positive hook means, one of said hook means being movable into and out of shell releasing position, a slot in said receiver receiving a portion of said last-mentioned hook means when said hook means is in shell-engaging position, means to move said extractor and said last-mentioned hook means to extract said shell from the chamber and means to urge said hook means into shell-engaging position, and a shoulder at the end of said slot cooperating with said portion to move said last-mentioned hook means out of shell-engaging position, said slot being of such length that said portion is retained therein during substantially the entire period of extraction.

DAVID M. WILLIAMS.