March 17, 1931. W. L. LITTLE 1,796,757

SHELL EXTRACTOR

Filed Nov. 6, 1929

Fig. 1.

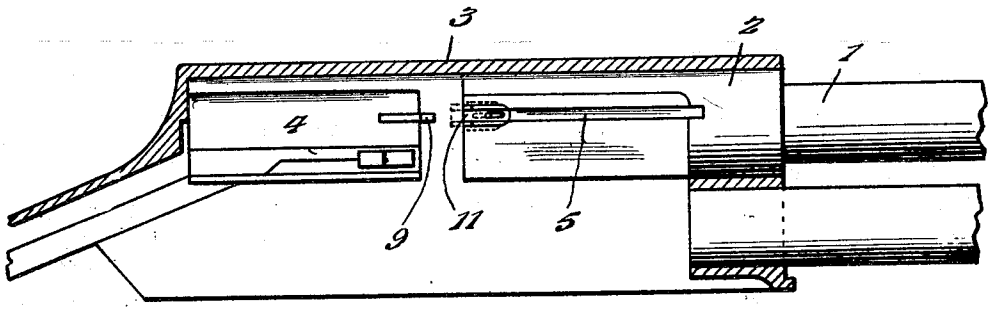


Fig. 2.

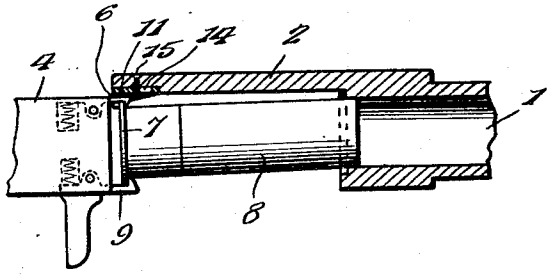


Fig. 4.

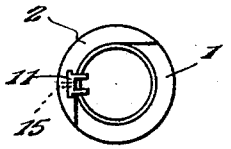


Fig. 5.

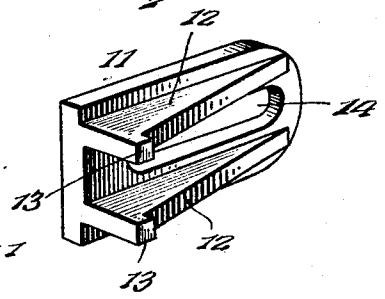
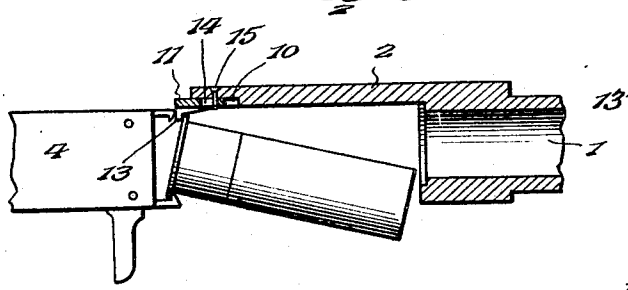


Fig. 3.



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UNITED STATES PATENT OFFICE

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SHELL EXTRACTOR

Application filed November 6, 1929. Serial No. 405,212.

This invention relates to automatic guns and has special reference to the means for ejecting a shell after the gun has been fired. Automatic guns have been heretofore provided with shell ejectors by the action of which a shell was automatically thrown from the gun after the gun was fired and these devices operated satisfactorily as long as the shell was always of the exact length for which the gun was primarily designed. For various reasons, however, it happens that the shell is frequently somewhat longer than the shell the gun was intended to receive and, therefore, the ejector fails to operate successfully, the shell being caught in the end of the barrel and clogging the action. The present invention provides a very simple means whereby the shell will be successfully ejected even though it be somewhat longer than that for which the gun is designed. The invention is illustrated in the accompanying drawing and will be hereinafter fully set forth.

In the drawing:

Figure 1 is a longitudinal section, with parts in side elevation, of so much of a gun as is necessary to an understanding of the present invention,

Fig. 2 is a view, partly in horizontal section and partly in top plan, of some of the parts shown in Fig. 1,

Fig. 3 is a view similar to Fig. 2 but showing the shell partly ejected,

Fig. 4 is a rear elevation of the barrel extension with the improved shell-ejecting cam thereon, and

Fig. 5 is an enlarged detail perspective view of the ejection cam constructed in accordance with the present invention.

In the drawing, the reference numeral 1 indicates a portion of the barrel and 2 the barrel extension which is of the usual form. A portion of the frame is shown at 3 and the breech closure at 4. As is usual in guns of the type to which my invention is applied, the barrel extension is provided with a longitudinal groove 5 to accommodate the extractor hook 6 upon the breech closure, which hook is extended to engage over the flange or bead 7 at the rear end of the shell 8 and cooperate with an extractor hook 9 which engages the flange at a diametrically opposite point to withdraw the shell from the barrel after firing. Seated in a recess 10 at the rear end of the barrel extension 2 and alined with the groove 5 is an ejection cam 11 which, as shown most clearly in Fig. 5, consists of a plate of proper dimension to fit within the recess 10 and provided on its inner face with parallel longitudinal ribs 12 so disposed that their inner opposed faces will aline with the upper and lower walls respectively of the groove 5 and normally lie flush therewith. The inner edges of the ribs 12 are inclined toward the wall of the barrel extension so that their front ends merge into the surface of the base plate of the ejection cam and, consequently, are flush with the surface of the barrel extension. At the rear ends of the said inclined edges are inwardly projecting lugs 13 which are adapted to be engaged by the rear end of the shell as the latter is withdrawn from the barrel. Between the ribs 12, the base plate of the ejection cam is provided with a longitudinal slot 14 and the cam is held to the barrel extension by a rivet 15 inserted through said slot and through the wall of the barrel extension, as will be understood upon reference to Figs. 2 and 3 of the drawing, so that the rivet also serves as a stop to limit the sliding movement of the cam.

The gun equipped with my improved shell extractor is operated in exactly the same manner as heretofore. Heretofore, however, when the shell was extracted from the barrel, its rearward movement was limited because the cam 11 was fixed in place and the shell, consequently, could only move until its flange was arrested by the stop lugs 13 of the cam. If the shell happened to be a trifle longer than the barrel extension, the front end of the shell would remain in the rear end of the barrel and, therefore, the parts would jam and further manual manipulation would be required to remove the shell. With the present device, when the shell is extracted from the barrel, the engagement of the rear end of the shell with the stop lugs 13 will cause the slide to move

rearwardly with the shell, as indicated in Fig. 3, and the front end of the shell will, therefore, be entirely withdrawn from the barrel and will be ejected laterally in the usual manner. It will be noted that the sliding movement of the ejection cam is limited but the slot 14 may be made of such length, without greatly weakening the cam, that a considerable variation in the length of the shell will be accommodated and unless the shell should be so long that its excess of length, over the length of the barrel extension, exceeds the length of the slot 14, it will be positively and easily discharged in the usual action of the gun. Such excessive length of the shell, however, is exceedingly apt to be noticed when it is attempted to place the shell in the gun and, therefore, the actual loading of the gun with such a shell is not apt to occur.

My improved ejection cam is exceedingly simple and will not add appreciably to the cost of the gun while the efficiency of the gun will be greatly enhanced.

Having thus described the invention, I claim:

The combination with the barrel extension of an automatic gun, of an ejection cam seated in a recess at the rear end of the barrel extension and having a longitudinal slot through its base portion, and a securing device inserted through the wall of the barrel extension and through said longitudinal slot of the ejection cam to retain the cam in place and permit a limited sliding movement of the same.

In testimony whereof I affix my signature.

WILLIAM L. LITTLE.