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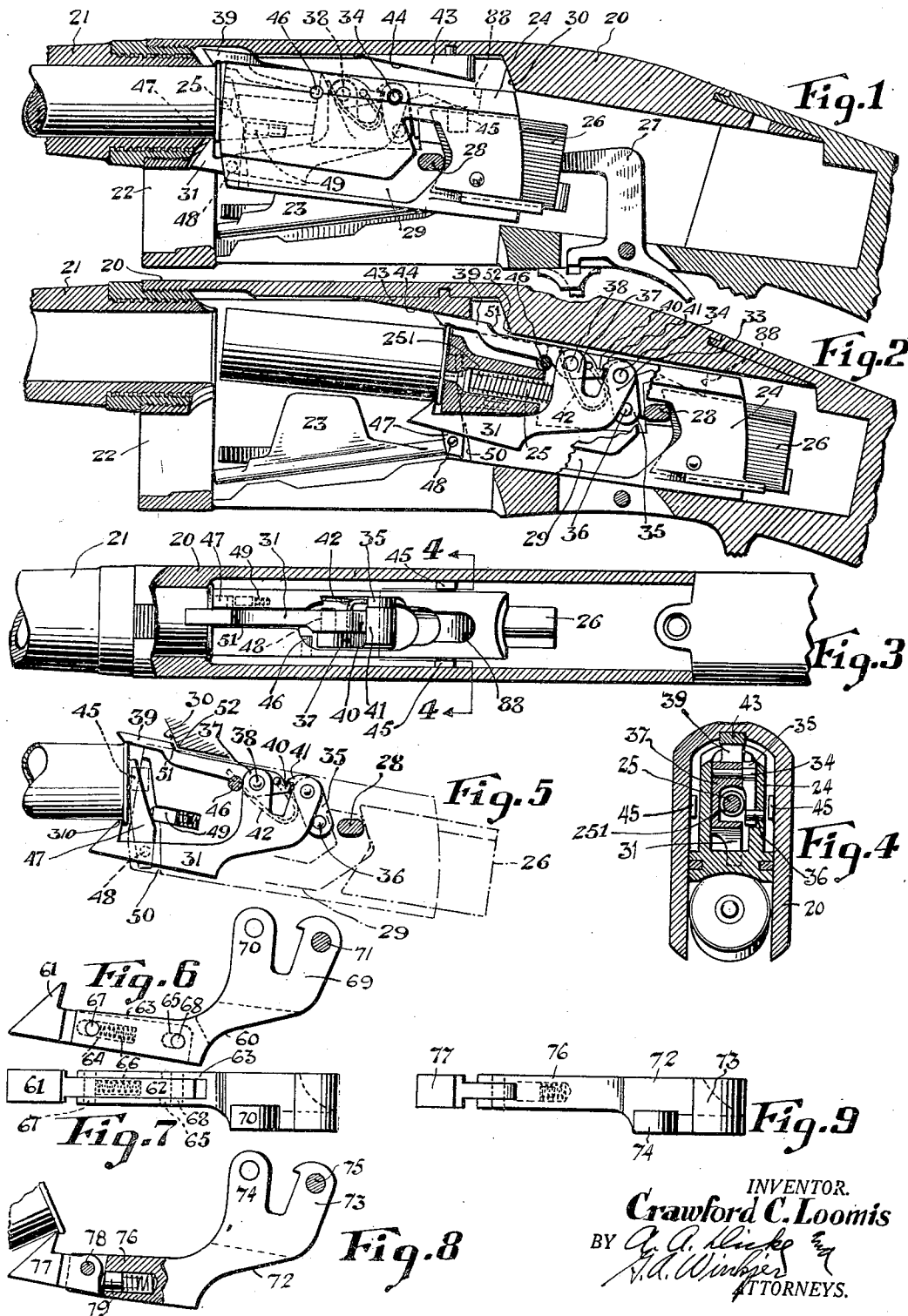
C. C. LOOMIS

1,828,330

FIREARM

Filed Oct. 24, 1929

2 Sheets-Sheet 1



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Oct. 20, 1931.

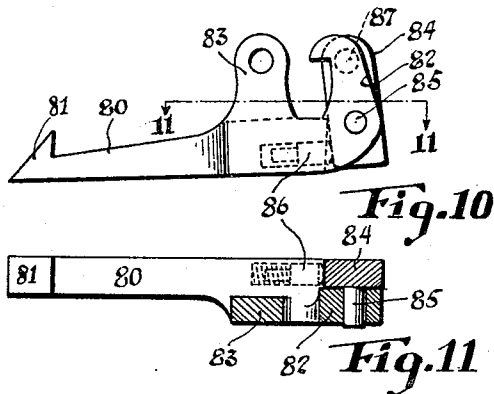
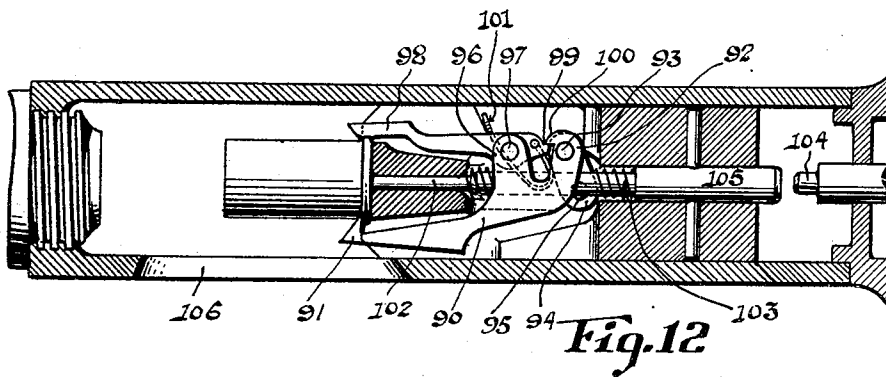
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FIREARM

Filed Oct. 24, 1929

2 Sheets-Sheet 2



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## UNITED STATES PATENT OFFICE

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## FIREARM

Application filed October 24, 1929. Serial No. 402,008.

The present invention relates to magazine firearms wherein a movable breech block is utilized in the operation of inserting a fresh cartridge in the barrel chamber and in extracting a fired shell from the chamber and in ejecting the same from the receiver.

The invention pertains to improvements in the extractor and ejector mechanism for such firearms and contemplates such mechanism that will be reliable in its operation whether the action be operated slowly or with ordinary speed or with extreme rapidity.

It is an object to provide devices operable to effect a forceful and controlled ejection when the firearm action is manipulated slowly or with ordinary speed and further devices operable during manipulations of greater or extreme rapidity to insure an equally dependable ejection under the latter manipulations.

It is a further object to provide the breech block with an extractor claw which is sufficiently yieldable to accommodate cartridge shell rims of varying thicknesses.

A further object lies in the provision of an improved ejector mechanism, a portion of which is located at the forward face of the breech block and is adapted to serve in the additional capacity of contacting the shell base and preventing engagement of the extractor device with the cartridge shell rim while the breech block is urging the cartridge into the barrel chamber, thereby enabling the user on changing his mind to remove a cartridge which has been partially inserted in the barrel chamber without the annoyance and difficulty of working the rim loose from the extractor claw.

These and further objects are attained by the novel construction and arrangement of parts hereinafter more fully described, reference being had to the accompanying drawings forming a part of this specification.

In the drawings:

Figure 1 is a fragmentary longitudinal section in elevation of a firearm embodying the present invention, showing the breech unlocked and the extractor device in engage-

ment with the shell rim ready to withdraw the shell from the chamber.

Figure 2 is a fragmentary longitudinal section in elevation showing the breech block retracted to a point where shell ejection is about to take place.

Figure 3 is a plan view of the receiver, the top wall being removed to show a portion of the interior mechanism.

Figure 4 is a transverse section taken substantially along the line 4—4 of Figure 3.

Figure 5 is a diagrammatic view in side elevation of the breech block with the parts of the extractor and ejector mechanism in their relative positions at the moment of shell ejection.

Figure 6 is a side view in elevation of a modified form of extractor.

Figure 7 is a plan view of the extractor of Figure 6.

Figure 8 is a side view in elevation partially broken away showing a further modified form of extractor.

Figure 9 is a plan view of the extractor of Figure 8.

Figure 10 is a side view in elevation of a still further modified form of extractor.

Figure 11 is a view of the extractor of Figure 10 taken substantially along the line 11—11 of that figure.

Figure 12 is a longitudinal section in plan of a receiver illustrating a manner in which the novel extractor device of the present invention may be utilized in a firearm of the side ejection type.

For purposes of illustration I have shown the preferred form of my invention as embodied in a firearm of the general type disclosed in the patents to J. D. Pedersen, No. 719,955, February 3, 1903, and J. D. Pedersen, No. 789,932, May 16, 1905. The present invention may be considered as constituting certain improvements over the devices of my co-pending application for firearms, Serial No. 312,960, filed October 17, 1928. Although I have shown and described my invention as applied to a firearm of a certain well known type, it is to be understood, as will be apparent from the following description, that

the devices of my invention are broadly applicable to firearms of many types.

Referring to Figures 1 to 4 of the drawings, the numeral 20 designates a receiver closed at the top and sides and open at the bottom for shell ejection. A barrel 21 is secured at the upper forward portion of the receiver and an opening 22 leading to a tubular magazine is provided below the barrel in the usual manner. A carrier 23 effects transfer of cartridges from the magazine to a position to the rear of the barrel chamber and a longitudinally movable breech block 24 serves to urge each cartridge from this position into the barrel chamber in a manner well known. The breech block carries a firing pin 25, spring pressed forwardly by spring 251 and housed centrally within a recess in the breech block. The firing pin terminates at its rear end in a cocking head 26, which is integral with the firing pin. Cocking and firing mechanisms are provided, together with a trigger 27, all operating in a known manner.

The movement of the breech block 24 and operation of the action is effected by a reciprocating movement of a forearm (not shown) having a rearwardly extending action bar (not shown) projecting into the receiver and formed at its rear end with a lug 28 which rides in a cam groove 29 in the side of the breech block. In the position of the parts as shown in Figure 1 the forearm and action bar have been started rearwardly and by the camming action of lug 28 in groove 29 the rear end of the breech block is seen to have dropped down somewhat away from its breech locking position behind shoulder 30 and is ready for rearward movement in the receiver. In Figure 2 the breech block is seen to have been moved to a position near the end of its rearward movement, a fired shell having been extracted from the barrel chamber and being now in a position where the ejecting mechanism is about to operate to eject the shell through the opening at the bottom of the receiver. For further description of a firearm of this type reference may be had to the above-mentioned patents.

In my co-pending application, Serial No. 312,960, there is disclosed a novel extractor device carried by the breech block which is suitably recessed to accommodate this device. The extractor device of the present invention is in general similar to the extractor device of my co-pending application, but the present invention contemplates several changes and improvements over the prior device, enabling it to perform additional functions and in general improving its operation.

The preferred form of extractor device of the present invention is shown in Figures 1 to 5, inclusive. The breech block is seen to be suitably recessed centrally to accommodate the extractor mechanism. A lower extractor

member 31 having a claw positioned at the lower front face of the breech block extends rearwardly and upwardly in the form of an arm 33 which is mounted on a pivot pin 34. The pivot pin 34 is carried by an upstanding link member 35 which in turn is mounted on pivot pin 36 secured to the breech block. By this construction it will be seen that the claw of extractor member 31 is capable of a pivotal movement about pin 34 and is additionally capable of a substantially longitudinal movement away from the breech block by virtue of the link mounting. This construction enhances the successful operation of the extractor device during the operation of ejection, as well as extraction, as will be pointed out more fully hereinafter. Like the device of my co-pending application, the lower extractor member 31 of the present illustrated embodiment is provided with a second upstanding arm 37 on which is pivotally mounted at 38 an upper tension arm 39. Tension arm 39 rearward of pivot 38 is formed with a projecting nose 40 engageable with shoulder 41 which is formed on the arm 33 of the extractor member 31. A bent wire spring 42 is secured at one end to the tension arm 39 to the rear of pivot 38 as shown, the opposite end of this spring resting against the side of a cut-away portion in the breech block, as shown most clearly in Figure 3. Spring 42 is thus arranged to urge nose portion 40 of arm 39 against shoulder portion 41 of the extractor member 31, tending to urge the claw of the latter upwardly and to urge the shell engaging portion of tension arm 39 downwardly to engage the rim of a cartridge shell, and also tending to urge the whole extractor device upwardly about pivot 34, as well as rearwardly about pivot 36.

The tension of spring 42 is sufficient to hold the extractor device in its rearward position as shown in Figure 2 at all times except during the ejecting operation when the extractor device moves forward relative to the breech block momentarily, as will be explained presently.

When a cartridge shell is in position in the barrel chamber and the breech block is in breech closing position, the claw of extractor 31 is in engagement with the rim of the shell. The shell engaging portion of tension arm 39 in this position of the breech block lies in a position forward and above the rim of the cartridge shell and does not engage the same, but on starting the action bar rearward the breech block will be pivoted about its lower front edge to the position of Figure 1 when tension arm 39 will engage the rim of the shell, the claw of extractor 31 retaining its hold thereon. Upon further rearward movement of the forearm, a rearward and somewhat downward movement of the breech block will take place whereupon withdrawal of the shell will be effected, the extractor de-

vice pivoting upwardly about pivot 34 to exert a pull on the shell in line with its resistance notwithstanding the downward movement of the breech block.

5 At the upper wall of the receiver there is mounted a member 43 having a rearwardly and downwardly slanting cam surface 44. The breech block is suitably recessed at 88 to accommodate the member 43 when the breech  
10 block is in breech closing position. Cam surface 44 is adapted to engage the upper portion of tension arm 39 during the latter part of the breech block movement to start the shell moving downward when the shell is  
15 substantially clear of the barrel, and to increase somewhat the grip of the extractor device on the head of the shell at this point in its rearward movement. This point corresponds to the position of the parts as shown  
20 in Figure 2, from which position by further rearward movement of the action, ejection will take place. Adjacent the shell rim and integral with the side walls of the receiver are two ejector lugs 45 against which the shell  
25 head is adapted to abut, rearward movement of the shell being thereby momentarily arrested while the breech block continues its rearward travel for a short distance. Due to the secure clamping of the extractor device  
30 on the shell head the rearward movement of the extractor device is also momentarily arrested, along with that of the cartridge shell. The breech block, however, continues to move rearwardly relative to the extractor device  
35 until the forward edge of the arm 37 contacts a stop pin 46, integral with the breech block, when this relative movement ceases. The position of the parts at this point is as shown in Figure 5. The spring 42 which has  
40 been placed under compression by this movement now urges the extractor device rearwardly from the position of Figure 5 back to its original position relative to the breech block. This rearward movement of the extractor device, enabling it to "catch up" with  
45 the breech block, occurs with great rapidity. About the same time, shortly after the extractor device has been stopped and the parts are in the position of Figure 5, the strain on  
50 the cartridge has become so great as to cause tension arm 39 to release its grip on the cartridge shell which then pivots downwardly about the lower forward corners of lugs 45. It will be seen that this pivotal movement of  
55 the shell causes a rapid rearward movement of the lowermost portion of the shell head which tends to remove the shell rim rearwardly away from contact with point 310 (Fig. 5) of the extractor claw. It is at this  
60 time that the extractor device, having been released by the release of the shell, snaps rearwardly from the position of Figure 5, as above explained, and by this rapid movement the point 310 of the claw is caused to follow  
65 the rearward movement of the adjacent por-

tion of the shell rim and retain its contact therewith, thus compelling the cartridge shell to pivot about point 310 of the claw while being flipped downwardly for ejection. By thus insuring that ejection will take place as  
70 a pivotal movement about pivot 310 of the claw, the ejection is seen to be exceptionally well controlled, especially when the action is worked slowly or with ordinary speed.

In order to insure absolute reliability of  
75 ejection even when the action is operated with extreme rapidity it is desirable to provide means operable to assist the above-described mechanism in effecting reliable ejection under  
80 conditions of very rapid and forceful manipulation. The present invention also contemplates the provision of such means which consists in the following: Referring to Figure 2 the cam groove 29 is seen to be cut  
85 away rearwardly at its rearmost portion to permit lug 28 of the action bar to bear against the forward exposed portion of the cocking head 26. In the position of the parts as shown in Figure 5, just before the shell has  
90 been released from the tension arm 39, the breech block is momentarily stopped in its rearward movement by the abutting of arm 37 against pin 46, as before explained. When this occurs and the rearward movement of  
95 the action is sufficiently rapid and forceful, lug 28 will cause a short rearward movement of the cocking head 26 relative to the breech block, thereby compressing firing pin spring 251, the firing pin 25 being integral with the  
100 cocking head 26, as before explained. Release of the cartridge shell by tension arm 39 follows immediately, whereupon the breech block is permitted to snap rearwardly to "catch up" with the rearward movement of  
105 the cocking head 26. The whole extractor device is thus carried rearwardly with the breech block whereby the point 310 of the claw is snapped rearward in a movement which, when combined with the rearward  
110 movement of the point 310 caused by spring 42, as previously explained, causes the point 310 of the claw to follow with increased alacrity any increase in the velocity with which the shell rim would tend to move rearwardly away from point 310 of the claw due  
115 to any extremely rapid and forceful manipulation of the action. It will be seen that the lowermost portion of the shell rim is forced to retain its contact with point 310 of the claw and to pivot about this point during  
120 ejection regardless of the speed or force of manipulation and that the ejection of the shell is dependably controlled under all conditions of operation.

It is preferred to apportion the relative  
125 strengths of springs 42 and 251 so that spring 42 operates under all conditions of operation, whether slow or rapid, easy or forceful, and so that spring 251 operates only under the  
130 more rapid and forceful manipulations of the

action to supplement the spring 42 under the latter conditions of operation.

During the last portion of the rearward movement of the breech block a cam portion 51 formed on the upper side of tension arm 39 strikes sharply against a shoulder portion 52 formed in the top wall of the receiver, imparting to the whole extractor device and shell a forceful downward ejecting movement which action cooperates with the other ejecting operations herein described to effect a highly reliable shell ejection.

At the same time a further device acts to assist in the successful ejection of the shell, which device it is within the contemplation of the present invention to provide. This consists of an ejector finger 47 pivotally mounted at 48 within a suitable recess in the forward face of the breech block immediately to one side of extractor member 31 (see Figures 2, 3 and 5). The ejector finger 47 is urged forward at all times by a spring follower 49 and is limited in its forward movement to the position illustrated in Figure 5 by engagement of its lower portion against the breech block at 50. When a shell is engaged by the extractor device the finger 47 is pressed inwardly into its seat in the breech block but exerts a pressure against the cartridge head, and when the cartridge is released from the extractor device the finger 47 serves to give an additional flip to the cartridge shell around point 310 of the claw as a pivot, thus ejecting the shell with greater alacrity and assisting to compel pivoting of the shell around point 310. The force exerted by spring follower 49 on finger 47 is such that this flipping function of the finger does not occur until the shell has been at least partially released from the extractor device.

The finger 47 besides performing its function in the capacity of assisting in ejection serves also in another capacity. When a fresh cartridge is being urged into the barrel chamber by forward movement of the breech block, the finger being normally in a forward position, as illustrated in Figure 5, engages the shell head before the shell rim can be engaged by the extractor claw, thereby keeping the rim free from the extractor device during the greater part of the forward movement of the breech block when the shell is being urged into the barrel chamber. Thus, when the operator changes his mind and wishes to remove a cartridge manually before it is completely inserted in the barrel chamber, he may effect this removal easily with his fingers, without encountering the difficulty and annoyance of having to work the cartridge rim loose from the extractor, as is commonly necessary.

It will be seen from the foregoing description of the several devices and their various functions taking part in the operation of extraction and ejection that a mechanism is

provided which will operate with an exceedingly high degree of reliability whether the action be operated very slowly or with ordinary speed or with great rapidity. The ejection of a shell taking place as a flipping of the shell about point 310 of the claw will positively occur regardless of the speed of operation of the action. It is to be noted also that the successful operation of the extractor and ejector mechanism is not hampered by the use of cartridge shells having rims of various sizes and thicknesses. The longitudinally yielding movement of the claw of extractor member 31 afforded by the pivoted link construction herein described will readily permit accommodation of cartridge shell rims within a wide range of dimensions without any difficulty of sticking or binding of the shell rims in the extractor device during ejection.

Although the pivoted link construction above described is the preferred manner of mounting the lower extractor member the results and functions obtained may be effected with equivalent success by modified constructions, all of which are within the contemplation of the present invention. A few illustrative examples of such modifications are shown in Figures 6 to 11, inclusive, and will now be described.

In Figure 6 is shown a lower extractor member 60 which may be substituted for member 31 of the embodiment of Figure 2. In the modification of Figures 6 and 7 a claw member 61 is seen to be provided with a rearwardly extending portion 62 which is received between the arms 63 of a forwardly extending bifurcated portion of the member 60. The portion 62 of the claw is provided with fore and aft elongated slots 64 and 65, the slot 64 being somewhat enlarged to house a coil spring 66 which bears at its rear end against the portion 62 and at its forward end against a transverse pin 67 which is secured to the arms 63 and which rides in the elongated slot 64. A similar pin 68, also secured to the arms 63, rides in the rear elongated slot 65. The claw 61 is normally urged rearward in a manner similar to that of the devices of the first described form. Upon arresting the movement of the cartridge shell during extraction the claw 61 will yield and on release of the shell the claw 61 will snap rearward to retain contact with the shell rim in a manner similar to that previously described. The member 60 is provided with upwardly extending arms 69 and 70 which are similar in construction and function to the arms 33 and 37 described for the form shown in Figure 2, the member 60 being pivoted at 71 directly to the breech block.

A further modified form of extractor member is illustrated in Figures 8 and 9. Here a member 72 is provided with upstanding arms 73 and 74, the arm 73 being pivoted at 75

75 to the breech block, the arm 74 being adapted to carry a tension arm similar to the member 39 of the first described form. In the modification of Figures 8 and 9 the member 72 is provided with a forwardly extending portion 76 to which a claw 77 is pivoted at 78. The claw is resiliently urged upward about pivot 78 by pressure from a spring follower 79 bearing against the claw below the pivot 78 as shown. In this construction, although the claw is seen to be pivoted to the member 72 and the member 72 pivoted to the breech block, the yielding and return movement of the claw is seen to afford substantially the same action as in the first described form.

A still further modified form of extractor member is illustrated in Figures 10 and 11. The extractor member 80 having a claw 81 integral therewith is provided at one side of its rear portion with upstanding arms 82 and 83 similar to the arms 33 and 37 of the first described form. A link member 84 carrying a laterally projecting pin 85 is positioned adjacent the member 80, the latter being preferably cut away as shown in Figure 11 to accommodate the link. The member 80 is apertured to receive the pin 85 effecting a pivotal relation between the member 80 and the link 84. A spring pressed plunger 86 recessed in the member 80, as shown, is positioned to bear against a portion of the link below the pivot 85, thus tending to urge the claw portion of member 80 upwardly to a shell rim engaging position adjacent the front face of the breech block. The link 84 is pivotally mounted as at 87 on the breech block. By this construction also, a compound pivotal motion of the extractor claw is secured by which is effected a dependable yielding and return movement of the claw 81, keeping the claw in contact with the shell rim as a pivot for the shell during ejection in a manner similar to that of the first described form.

In the embodiments of the invention explained thus far I have shown and described my device as applied to a firearm of the bottom ejection type, where the extractor claw is positioned adjacent the lower portion of the front face of the breech block. It is to be understood that the novel extractor mechanism of the present invention is applicable also to firearms of other types. For example, the device may be applied to the breech block of a firearm of the side ejection type with but slight changes in construction. In Figure 12 there is illustrated the extractor device of the first described form as applied to a breech block for side ejection, and for the purposes of illustration I have chosen a firearm of the type disclosed in my patent for "Firearm", No. 1,682,704 of August 28, 1928, the extractor mechanism of the present invention being shown as substituted for the

extractor device of the patent. An extractor member 90 having a claw 91 is positioned within a suitable recess in the breech block with the claw 91 in a shell rim engaging position at the ejection side of the breech block. An arm 92 integral with the extractor member 90 is mounted on a pivot pin 93 carried by a link 94 which in turn is pivoted to the breech block at 95. A second arm 96 integral with the member 90 is pivoted thereto at 97. A tension arm 98, similar to the arm 39 of Figure 2, is formed at its rear end with a nose portion 99 engageable with a shoulder 100 formed in the arm 92 of member 90. A bent wire spring 101 carried by the tension arm 98 and bearing against the surface of the breech block resiliently urges the claw of member 90 and the shell engaging portion of the tension arm 98 into a shell clamping position. Suitable cam surfaces may be provided to impart a shell ejecting movement to the tension arm 98 as described for the embodiment of Figure 2, if desired. A firing pin 102 passes centrally through the breech block and is normally urged rearward by a firing pin spring 103. In order to accommodate the firing pin the extractor member 90 is suitably offset, the arms 95 and 96 passing on one side of the firing pin and the link member 94 being positioned, if desired, at the opposite side of the firing pin. It is obvious that various arrangements of the parts may be made to accommodate the firing pin and the extractor mechanism within the breech block without interfering with one another. Ejection of a cartridge shell from the receiver is effected by movement of the firing pin at the end of rearward movement of the breech block. A spring abutment 104, as more fully disclosed in my Patent No. 1,682,704, is provided at the rear end of the receiver and is positioned to be engaged by the rear end of the firing pin which projects to the rear of the breech block at 105. Figure 12 shows the breech block near the end of its rearward movement, a fired shell having been extracted from the barrel chamber and being now ready for ejection through a side port hole 106 of the receiver. Further rearward movement of the breech block will cause the projecting portion 105 of the firing pin 102 to be engaged by spring abutment 104, causing a relative forward forceful movement of the firing pin against the shell head. This will cause the shell head to be moved away from the front face of the breech block, and being held by the claw 91 and the shell engaging portion of tension arm 98, this movement of the shell will cause a like forward movement of the extractor mechanism relative to the breech block until the tension on the shell forces its release from the arm 98. Upon such release, the claw 91 will snap rearward and retain its contact with the shell rim to serve as a pivot during

the flipping action of ejecting the shell in a manner similar to that described for the other forms.

Although I have shown the extractor device as embodying a tension arm carried by the extractor member, it is readily apparent that the extractor member may in certain applications be utilized alone as an extractor element, the tension arm being entirely eliminated or being replaced by any one of many known forms of claws, if desired, and a spring being suitably applied to the arm to urge the same toward a position holding the shell rim in contact with the front face of the breech block. By retaining the link mounting of the extractor member of the modifications of Figures 2 and 12 or by utilizing one of the modified forms of Figures 6 to 11, many advantages of the present invention are retained, the ejecting action, however, being somewhat modified due to the elimination of the tension arm and its attendant functions previously described, inasmuch as the downward ejecting motion imparted by the tension arm would no longer be available.

It is to be understood that various changes in the construction and arrangements of parts may be made without departing from the spirit of the invention as hereinafter claimed.

Having fully described my invention, what I claim is:

1. In combination with the breech block of a firearm, a member pivoted to said breech block, and an extractor claw mounted on said member for movement relative thereto.

2. In combination with the breech block of a firearm, a member mounted on said breech block for movement relative thereto, and an extractor claw pivotally carried by said member.

3. In combination with the breech block of a firearm, a link pivoted to the breech block, and an extractor claw pivoted to said link.

4. In combination with the breech block of a firearm, an upstanding link pivoted at its lower end to the breech block, and an extractor claw pivoted to the upper end of said link.

5. In combination with the breech block of a firearm, a link pivoted to the breech block, and an extractor member having a claw positioned at the lower front face of the breech block, said extractor member being pivoted to said link.

6. In combination with the breech block of a firearm, a firing pin housed centrally within the breech block, a link pivoted to said breech block, and an extractor claw pivoted to said link above said firing pin.

7. In combination with the breech block of a firearm, a link pivoted to the breech block, an extractor member having a claw positioned at one side of the front face of the

breech block, said member being pivoted to said link, a tension arm having a shell engaging portion positioned at the opposite side of the front face of the breech block, said arm being pivoted to said extractor member.

8. In a firearm having a movable breech block, the combination of an extractor device movable in a direction at right angles to the front face of the breech block and adapted to hold a cartridge adjacent said face, and a spring-pressed ejector member pivoted to said breech block positioned to urge the cartridge away from said face.

9. In a firearm having a movable breech block, the combination of a link pivoted to said breech block, an extractor member pivoted to said link and having a claw adapted to hold a cartridge adjacent the front face of the breech block, and a spring-pressed ejector member carried by said breech block urging the cartridge away from said face.

10. In a firearm, in combination, a barrel chamber, a breech block carrying an extractor claw and being movable to extract a cartridge shell from said chamber, ejector mechanism operable near the end of the extracting movement of said breech block to force said shell away from said breech block, and means carried by said breech block operable to insure pivoting of said shell about said claw.

11. In a firearm, a reciprocable breech block, an extractor claw carried by said breech block engageable with the rim of a cartridge shell, ejector mechanism operable to momentarily stop said claw and shell during the extracting movement of said breech block and to impart an ejecting movement to said shell, and means operable to impart a further movement to said claw, said claw retaining engagement with the shell rim during said further movement.

12. In a firearm, a reciprocable breech block, an extractor carried by said breech block engageable with the rim of a cartridge shell, means to momentarily stop said claw during the extracting movement of said breech block, ejector mechanism operable to turn said shell about said claw as a pivot, and means to impart a further movement to said claw to retain contact of the claw with the shell rim during the turning of the shell.

13. In a firearm, a reciprocable breech block, an extractor claw carried by said breech block engageable with the rim of a cartridge shell, means to momentarily stop said claw and breech block during the movement of extraction, ejector mechanism operable to turn said shell about said claw as a pivot, an action bar and a resilient connection between said action bar and breech block whereby on stopping said breech block energy is stored therein to impart a further movement to said breech block and claw to retain

contact of said claw with the shell rim during the turning movement of said shell.

to hold a cartridge adjacent said face, and a spring-pressed ejector member pivoted in said breech block adjacent and extending substantially transversely of the front face thereof and adapted to be projected therefrom to urge the cartridge away from said face.

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14. In a firearm, a reciprocable breech block, an extractor claw carried by said breech block engageable with the rim of a cartridge shell, means to momentarily stop said claw during its movement of extraction, ejector mechanism operable to turn said shell about said claw as a pivot, said claw being resiliently mounted on said breech block whereby on stopping said claw energy is stored therein to impart a further movement to said claw to retain contact of said claw with the shell rim during the turning movement of said shell.

15. In a firearm, in combination with a breech block movable to insert a cartridge shell in the barrel chamber, an extractor claw engageable with the rim of a cartridge shell, and means to prevent engagement of the shell rim with said claw during the shell-inserting movement of said breech block.

16. In combination with the breech block of a firearm, an extractor claw engageable with the rim of a cartridge shell, and a device positioned to contact the head of the cartridge shell and thereby prevent engagement of the shell rim with said claw, said device being yieldable under increased pressure from said shell to permit engagement of the rim with said claw.

17. In a firearm, in combination with a breech block movable to insert a cartridge shell in the barrel chamber, an extractor claw carried by the breech block adjacent its front face, a member pivoted to said breech block adjacent its front face and spring urged to a position to engage the head of a cartridge shell and thereby prevent engagement of the shell rim with said claw during the shell-inserting movement of said breech block, said member being yieldable under increased pressure to permit engagement of the shell rim by said claw.

18. In combination with the breech block of a firearm, a member pivoted to said breech block, an extractor claw mounted on said member for movement relative thereto, and resilient means interposed between said claw and said member.

19. In a firearm, in combination with a breech block movable to insert a cartridge shell in the barrel chamber, an extractor claw carried by said breech block and an ejector finger pivoted to said breech block and positioned to engage the shell and thereby prevent engagement of the shell with said claw during the shell inserting movement of said breech block, said finger being adapted on insertion of the shell to be moved to a position ready for shell ejection.

20. In a firearm having a movable breech block, the combination of an extractor device movable in a direction at right angles to the front face of the breech block and adapted

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