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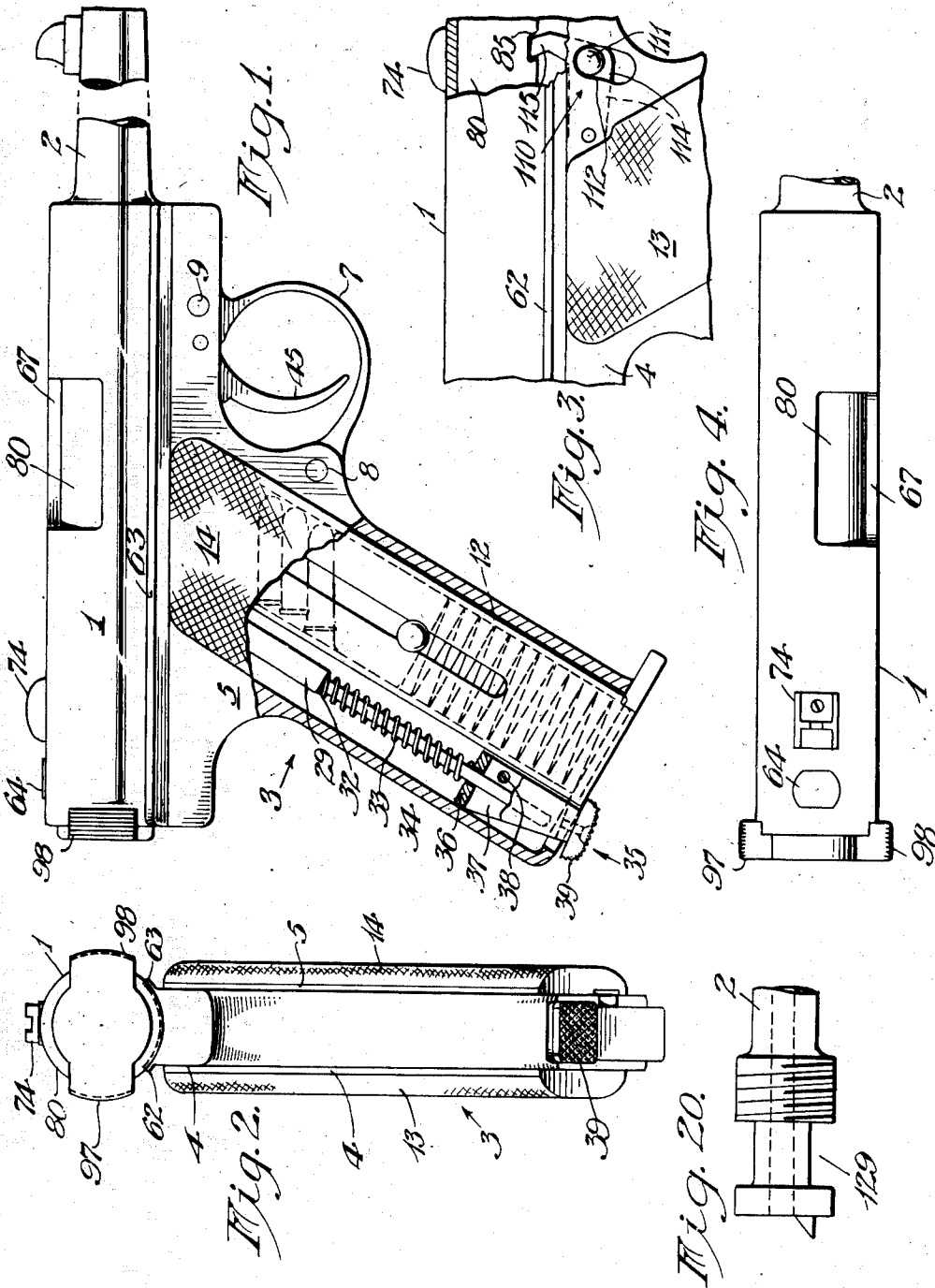
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2,655,839

BLOWBACK AUTOLOADING PISTOL

Filed Nov. 5, 1946

3 Sheets-Sheet 1



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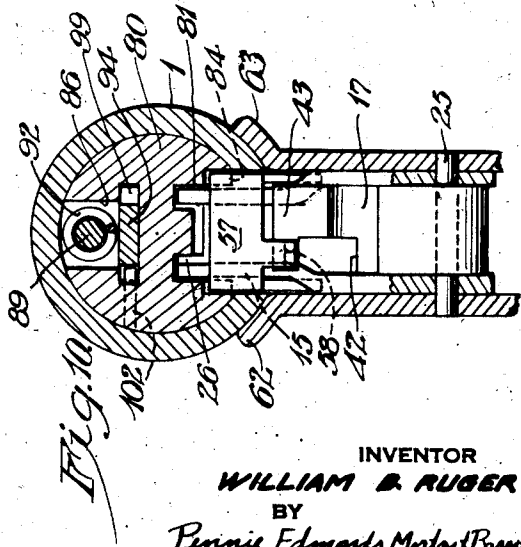
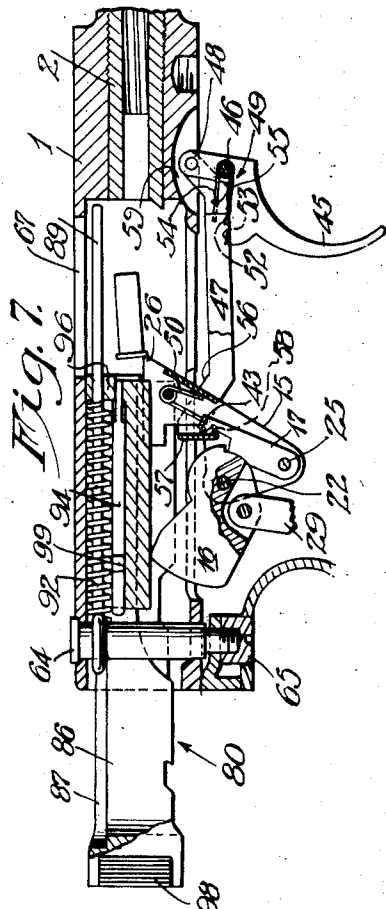
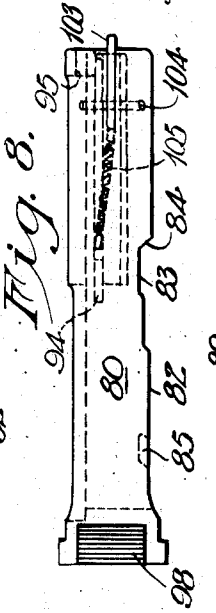
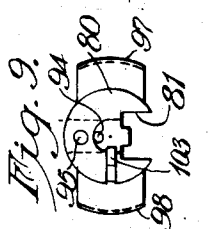
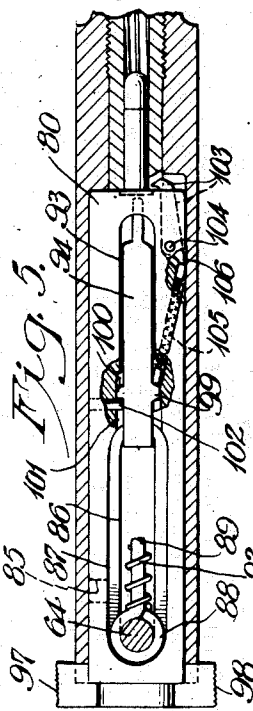
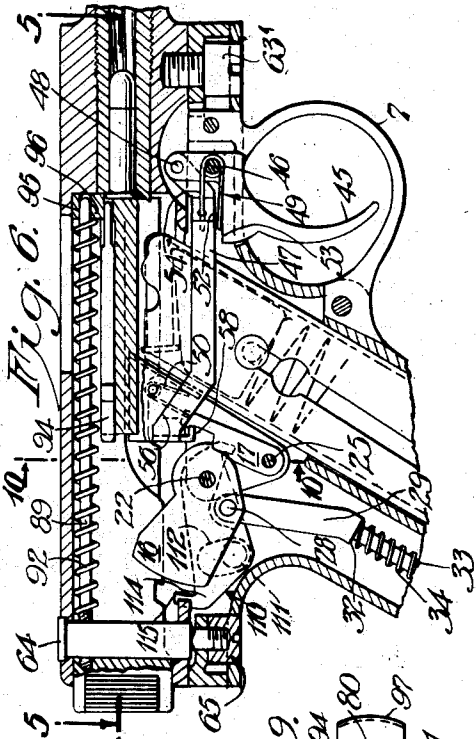
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BLOWBACK AUTOLOADING PISTOL

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3 Sheets-Sheet 2



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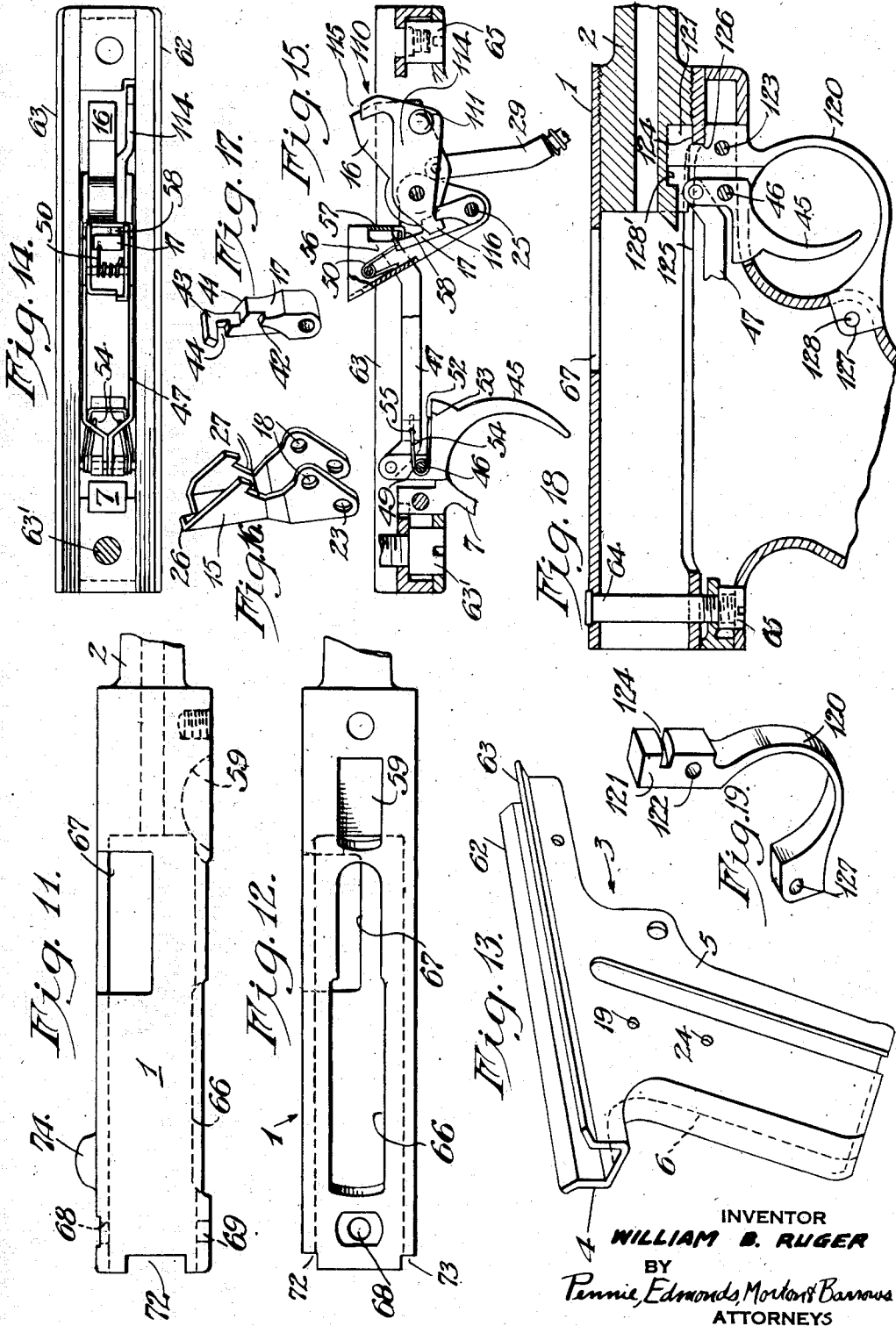
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BLOWBACK AUTOLOADING PISTOL

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3 Sheets-Sheet 3



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BLOWBACK AUTOLOADING PISTOL

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4 Claims. (Cl. 89—196)

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This invention relates to pistols and has for its object the provision of an improved autoloading pistol, and particularly an improved autoloading pistol of the blowback type. In its more general aspects my invention provides a new construction and arrangement of elements by means of which I am able to produce a pistol from readily available stock materials at comparatively low costs. I am able to produce an autoloading pistol with a minimum of the expensive broaching and milling now required in fashioning the grip and receiver.

In one of its embodiments my invention provides a grip member for an autoloading pistol comprising two complementary mating half parts which are welded together to form a unitary structure. I form the two halves of the grip member from sheet metal, for example sheet steel, by drawing, pressing or stamping and I weld them together along their contacting edges, thus providing a grip member with means for the trigger guard and trigger mechanism, a space in the grip for a box-magazine, means for mounting the hammer and sear assembly, and means for receiving and securing the receiver and barrel to the grip member.

In another aspect, my invention provides an improved receiver for autoloading pistols of the blowback type, preferably formed of stock tubing, and a breech bolt of cylindrical exterior shape reciprocable in the cylindrical space in the tubular receiver. The breech bolt of my invention comprises an upright longitudinal guide slot which serves a triple function; namely, a space for the swinging of the hammer, a guide means for retaining the bolt in a non-turning position, and a means for engaging a stop member to limit the movement of the bolt, and particularly to arrest its rearward travel. In an advantageous construction of my pistol, I employ a stop member which is inserted through the slot and which serves to effect an engagement between the receiver and the grip member, thereby securing those members together at the rear and forming an unyielding block for stopping the bolt at the end of its ejection stroke. The stop member may also be used as a support for the action spring.

Another embodiment of the invention comprises an improved hammer and sear assembly, and in a present preferred construction I mount these elements in a housing which is removably inserted into the hollow space of the grip member as a unit. I may so form this housing of sheet metal as to provide clearance spaces for a safety, a means for attaching thereto the sear spring, a means for limiting the movement of the trigger

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rod, and also a projection which is the ejector for the ejection of the empty cartridge cases.

My invention provides a very simple latching means in combination with the grip member and receiver for releasably securing the front of the grip member to the receiver. I form a projecting lug on the trigger guard with an arcuate slot of such proportions and spacing as to receive an edge portion of the under side of the receiver cylindrical wall. The forward end of the receiver, accordingly, is secured to the front of the grip member by insertion of the receiver edge portion in the arcuate slot on the lug. The heel of the grip member is secured to the receiver by a bolt.

My invention provides an improved safety which locks the sear and also the bolt preventing the bolt from being pulled rearwardly when in the safe position.

These and other novel features of the invention will be better understood after considering the following discussion taken in conjunction with the accompanying drawings, in which:

Fig. 1 is a side elevation of an autoloading pistol with parts shown in section embodying my invention;

Fig. 2 is a view of the pistol from the rear;

Fig. 3 is a fragmentary side elevation, with parts in section, from the opposite side of that shown in Fig. 1 illustrating the safety;

Fig. 4 is a view of the receiver from above;

Fig. 5 is a sectional view along line 5—5 of Fig. 6;

Fig. 6 is a sectional view along the line 6—6 of Fig. 5 showing the hammer in cocked position with the bolt in position for firing;

Fig. 7 is a view similar to that of Fig. 6 showing the bolt at the end of its ejection stroke;

Fig. 8 is a side view of the bolt;

Fig. 9 is an end view of Fig. 8;

Fig. 10 is an enlarged sectional view along the line 10—10 of Fig. 6 with the hammer omitted;

Fig. 11 is a side view of the receiver;

Fig. 12 is a view from below of the receiver;

Fig. 13 is a perspective of the grip member;

Fig. 14 is a view from above of the trigger assembly with the receiver removed;

Fig. 15 is a fragmentary side view of Fig. 14, with parts in section, illustrating the trigger and hammer assemblies;

Fig. 16 is a perspective of the hammer and sear assembly housing;

Fig. 17 is a perspective of the sear;

Fig. 18 is a fragmentary side elevation of a modification;

Fig. 19 is a perspective of the trigger guard con-

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necting lugs for the modification of Fig. 18, and Fig. 20 is a modified form of barrel.

The autoloading pistol illustrated in the drawings comprises a receiver 1 preferably formed of stock tubular steel, a barrel 2 threaded into the receiver in the usual manner and a grip member 3 formed of two complementary pressed, molded, or otherwise formed metal mating half parts 4 and 5 welded together along the vertical center line 6 (Fig. 13).

The trigger guard 7 may be integral with the grip member or a separate piece connected thereto by the pins 8 and 9, as shown in Fig. 1. A hollow space in the grip member receives the magazine 12, sear, and the trigger and hammer assemblies. The exterior has the usual grip stocks 13 and 14 attached thereto. The housing 15 for the hammer 16 and sear 17 is formed of bent sheet metal, as best shown in Fig. 16. The holes 18 coincide with holes 19 in the grip member and receive a pin 22 which not only pivotally connects the hammer to the housing but secures the housing to the grip member. The holes 23 coincide with holes 24 in the grip member and receive a pin 25 which pivotally connects the sear to the housing and secures the housing in position in the grip member. The upper front edge 26 of the housing is the ejector and the notches 27 provide clearance for the trigger rod (Fig. 15) later to be described.

The hammer 16 is pivotally connected by pin 28 to the angular strut 29 which passes down through the grip member behind the magazine partition, the lower end of which is cut down to a small diameter to provide a shoulder 32 and follower rod 33 for the hammer spring 34. The magazine is held in position by a catch 35 which has a transverse plate 36 with an opening in the center through which the follower rod passes, a connecting bar 37 pivotally connected to the grip member to one side of the follower rod by the pin 38, and a knurled button 39 on the projecting end. The hammer spring bears against the shoulder 32 on one end and against the transverse plate 36 on the other end, and since the pin 38 is off to one side, the magazine catch is pressed by the spring counterclockwise as the gun is seen in Fig. 1. The hammer spring accordingly serves a double function; it operates the hammer and the magazine catch.

Fig. 6 shows the hammer in its cocked position ready to fire with the sear 17 holding the hammer.

As best shown in Fig. 17, the sear comprises the hammer catch 41, a lug 42 for engaging the safety, a head 43 for engaging the trigger rod, and a trigger rod disconnecter slot 44. As shown in Figs. 6, 7 and 15, the sear pivots on pin 25 and is urged in a counterclockwise direction, as seen in Figs. 6 and 7, by the coil spring 50 which has one arm bearing on the housing and the other arm bearing on the sear. This rear spring moves the sear into catching engagement with the hammer.

The trigger assembly is best shown in Figs. 6, 7, 14 and 15 and comprises the trigger 45 which is pivoted to the receiver by the pin 46, a trigger rod 47 which is pivoted to the trigger by the pin 48, and a coil spring 49 mounted over the pin 46 having one arm 52 in the form of a loop bearing upon the heel 53 of the trigger to apply trigger tension, and two arms 54 inserted through holes 55 in the trigger rod to hold the sear-engaging end upward. The trigger rod is in the form of a loop passing on both sides of the magazine

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and slopes upwardly providing the inclined surfaces 56 for connection with a cam surface on the bolt which is a disconnecter for the trigger. The flat lateral bar 57 behind the sear has a depending lug 58 which engages the head 43 of the sear for operating the sear to release the hammer but which can move through the slot 44 in the sear without operating it when the trigger rod is cammed down to prevent automatic firing, as will later be explained.

In order to provide clearance for the movement of the trigger in the modification of Fig. 1, the receiver and barrel have an arcuate undercut 59.

The receiver 1, preferably formed of stock steel tubing, is threaded at one end to receive the barrel 2 in the usual way. The grip member has outwardly flared and arcuately shaped lips 62 and 63 (Fig. 10) which fit the cylindrical curvature of the tubular receiver and provide bearing surfaces against which the receiver may be held firmly to the grip member. At the forward end of the receiver, in the modification of Fig. 1, a thick short screw 63' connects the receiver to the grip member, and at the rear end of the receiver, the pin 64 and cylindrical nut 65 connect the receiver to the grip member.

The receiver, as best shown in Figs. 11 and 12, has an undercut 66 for movement of the hammer, trigger rod and clearance for the magazine, an ejection port 67 at one side, holes 68 and 69 for the pin 64, and side slots 72 and 73 for the bolt grips. A rear sight 74 may be attached in any suitable manner to the receiver.

The breech bolt 80 is formed of cylindrical steel stock and is slidable in the cylindrical central space of the receiver. The underside of the bolt has a cut 81 (Fig. 9) to clear the magazine and a cut along the contour 82 (Fig. 3) to provide a space 83 for the bar 57 of the trigger rod to rise into so that the lug 58 can engage the head 43 of the sear when in the firing position shown in Fig. 6, and an inclined or cam surface 84 which engages the inclined surfaces 56 on the trigger rod when the bolt moves rearward to press the trigger rod downward when the bolt is open, as shown in Fig. 7, to disconnect the trigger rod from the sear leaving the sear free to engage the hammer. Along the contour 82, a notch 85 is formed to receive a projection from the safety member, later to be described.

As shown in Fig. 5, the breech bolt has a longitudinal and vertically disposed slot 86 which is the same width as the blocking pin 64 and the length of the slot is approximately the length of the travel of the bolt. The bolt is, accordingly, held against turning by the pin and the pin serves the important function of a block for the rearward travel of the bolt. An additional cut 87 is made around the slot 86 of a width sufficient to receive the ring 88 of the follower rod 89 for the action or return spring 92. In the reciprocable movement of the bolt, therefore, there is sufficient clearance above the slot 86 in the cut 87 for the ring 88. Contiguous with the cut 87 is a cut 93 in which the flat firing pin 94 is mounted. One end of the follower rod is inserted into a small hole 95 in the shoulder 96 against which the action spring bears, urging the breech bolt to its closed position. At the rear end the bolt has projecting ribbed ears or hand grips 97 and 98, either integral with, or attached to, the bolt. These hand grips enter the side slots 72 and 73 when the bolt is closed and extend outwardly from the receiver to be grasped readily in pulling the bolt rearward by hand.

As shown in Figs. 6 and 7, the action spring lies directly over the firing pin. The firing pin has a pair of ears 99 and 100 (Fig. 5) which slide in an undercut 101 and the firing pin is thereby guided in its short travel and prevented from rising. A retaining pin 102 enters the cut 93 and engages the ear 100 on the rearward side, preventing the firing pin from being moved too far rearward. The front part of the breech bolt is cut out to receive the extractor 103 pivotally connected to the bolt by the pin 104. A diagonal hole is bored through the breech bolt to receive the spring 105, one end of which bears against the ear 99 holding the firing pin rearward, and the other end of which bears against the arm 106 of the ejector to hold the hook of the ejector behind the rim of the cartridge.

The pistol is provided with a safety 110 (Figs. 3, 6 and 15) comprising a button 111 which may be moved in the short space 112 in the grip member and a locking member 114 having a lug 115 which enters the cut 85 in the breech bolt when in the safety position, preventing the breech bolt from being pulled rearward, and a depending lug 116 which hooks over the shoulder 42 on the sear preventing the trigger from operating the sear to release the hammer.

In the modification shown in Figs. 18 and 19, the trigger guard 120 has an upwardly extending lug 121 having a hole 122 therethrough for attachment by means of the pin 123 to the front end of the receiver, and an arcuate cut 124. The lug 121 projects through the undercut 125 in the receiver and the cylindrical edge 126 on the receiver slides into the arcuate cut 124 which has the same radius of curvature as the receiver. In this manner the front of the grip member is detachably connected to the front of the receiver. The trigger guard has another hole 127 by means of which it is attached by a screw or rivet 128 to the grip member. In order to provide clearance for the lug 121, a space 128' must be cut in the under surface of the barrel.

In the modification of Figs. 18 and 19, it is only necessary to unscrew the nut 65 from the pin 64, remove the pin 64, and then pull the receiver forward in order to remove the receiver from the grip member.

Fig. 20 is a modified form of barrel. In order to provide a clearance for receiving the lug 121, the barrel is turned down to form an annular groove 129.

The pistol of the invention is operated as follows: When a magazine containing cartridges is inserted into the grip member, the catch 35 snaps under the heel of the magazine and holds it in position, as shown in Fig. 1. To load a cartridge into the barrel chamber, it is only necessary to grasp the ribbed ears 97 and 98 on the bolt between the thumb and forefinger and pull the bolt rearward. The action spring 92 is compressed while the breech bolt is guided in its rearward travel by the pin 64. When the bolt reaches the end of its stroke, a cartridge is pressed into position by the magazine and when the bolt is released the action spring drives it forward throwing the cartridge into the barrel chamber. The rearward movement of the bolt turns the hammer counterclockwise to its cocked position shown in Fig. 7. After the bolt reverses its motion and travels forward a short distance permitting the hammer to turn clockwise a short distance, the sear 17 engages the hammer and secures it in its cocked position (Figs. 6 and 7). When the bolt is completely forward the coil spring 49 holds the

trigger rod 47 upward on the rear end so that the lug 58 can engage the head 43 and move the sear forward against spring 50 when the trigger is pulled, thereby releasing the hammer. The hammer swings against the firing pin in the usual way driving it against the cartridge primer. As a result of the explosion, the breech bolt is driven rearward, the hook of the ejector 102 supporting the empty case, as it leaves the chamber. The breech bolt moves only a short distance rearward when the cam surface 84 engages the inclined surfaces 56 and the rearward end of the trigger rod is depressed to a point where the lug 58 is in alignment with the slot 44 of the sear. In this position the sear is free to swing and take a position ready to catch the hammer. These disconnecter means prevent the gun from operating as a full automatic and permit the sear to engage the hammer, even though the trigger be held and, require that the trigger be released and pulled for each shot. Near the end of the rearward travel of the breech bolt, the cartridge butt strikes the projecting extractor 26 and is ejected through the port 67.

I claim:

1. An improved autoloading pistol of the blow-back type which comprises a grip member, a tubular receiver secured to the barrel, a hammer in the grip member, said grip member having longitudinal bearing edges on its opposite sides which engage the tubular receiver, means for securing the tubular receiver to the grip member, a cylindrical breech bolt in the receiver, an upright slot in the breech bolt, said hammer being arranged to swing into said slot, a pin in the slot coupling the receiver to the grip member which not only guides but stops rearward travel of the bolt, and an action spring with one end bearing against the bolt and the other end bearing against the pin.

2. An improved autoloading pistol of the blow-back type which comprises a grip member, an annular tubular receiver secured to the barrel, said grip member being shaped to engage the tubular receiver exteriorly, transverse holes in the receiver and a coincident hole in the grip member, a bar in the holes for securing the tubular receiver to the grip member, a cylindrical breech bolt in the receiver, an upright slot through the breech bolt, said bar passing through the slot guiding the breech bolt in a non-turning operative position and serving as a stop for the rearward travel of the bolt.

3. An improved autoloading pistol of the blow-back type which comprises a grip member, an annular tubular receiver secured at one end to the barrel which is open at its opposite rearward end, said grip member being shaped to engage the receiver exteriorly, a breech bolt in the receiver the rearward end of which extends through the rearward open end of the receiver when the breech bolt is closed and also when it is open, grip means on the rearward end of the breech bolt for pulling it rearward by hand to cock the hammer, an upright slot through the breech bolt, an upright bar secured in the rearward end of the receiver, said bar passing through the slot to guide the breech bolt in a slidable but non-turnable operative movement in the receiver and also to serve as a stop for the rearward travel of the breech bolt.

4. An improved autoloading pistol of the blow-back type which comprises a grip member formed of two complementary mating half parts which are formed of sheet metal and welded to-

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gether to form a unitary structure, a tubular receiver which is cylindrical inside and outside secured to the barrel, a cylindrical breech bolt in the receiver, a firing pin, a hammer pivotally mounted to swing against the firing pin, the breech bolt extending through the rearward end of the receiver, both in its rearward and firing positions and serving as a closure for the receiver, the breech bolt having hand grip means on the rearward end for pulling the breech bolt rearward to cock the hammer, means for guiding the breech bolt in a slidable but non-turnable position, and means for removably securing the tubular receiver to the grip member at the forward and rearward ends.

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