Aug. 12, 1952 L. A. JENSEN 2,606,383

LEVER ACTION FIREARM

Filed Sept. 6, 1949 4 Sheets-Sheet 1

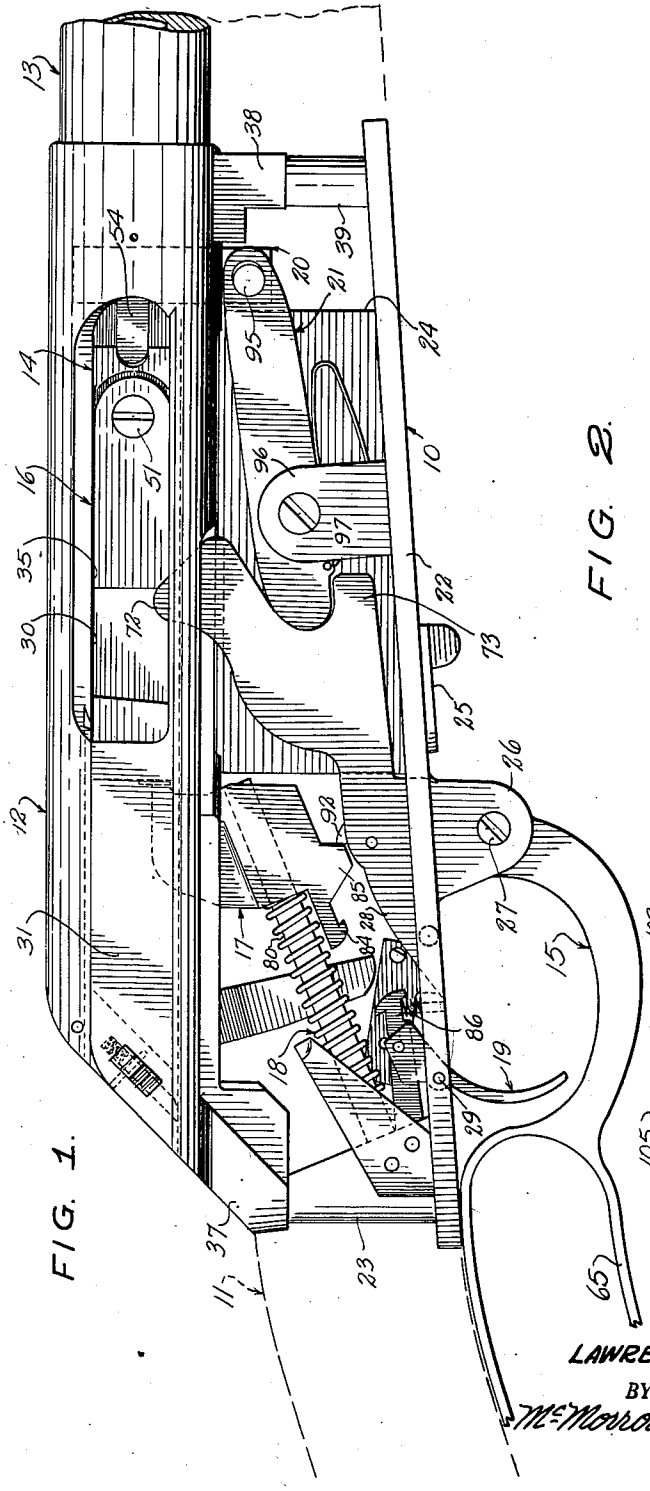


FIG. 1.

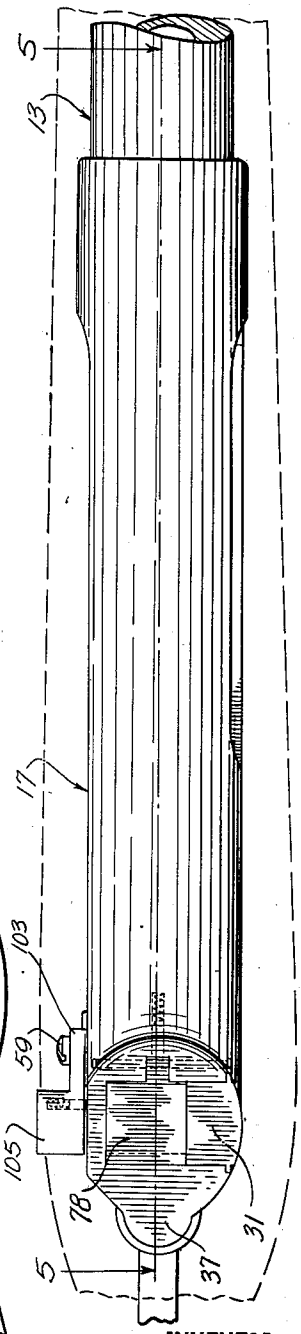


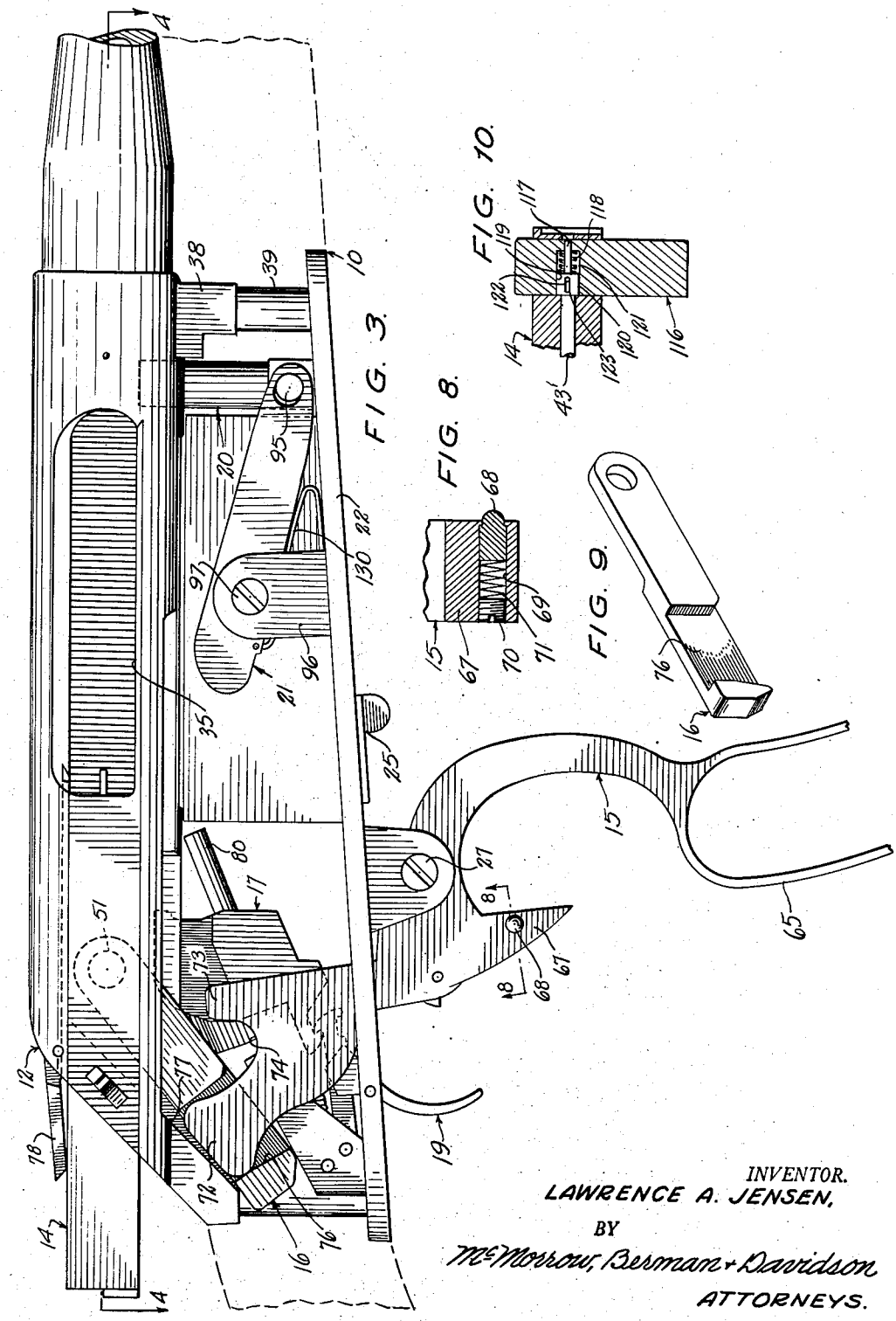
FIG. 2.

INVENTOR.
LAWRENCE A. JENSEN,
BY
McMorrow, Berman + Davidson
ATTORNEYS.

Aug. 12, 1952 L. A. JENSEN 2,606,383

LEVER ACTION FIREARM

Filed Sept. 6, 1949 4 Sheets-Sheet 2



INVENTOR.
LAWRENCE A. JENSEN,
BY
McMorrow, Berman & Davidson
ATTORNEYS.

Aug. 12, 1952 L. A. JENSEN 2,606,383

LEVER ACTION FIREARM

Filed Sept. 6, 1949 4 Sheets-Sheet 3

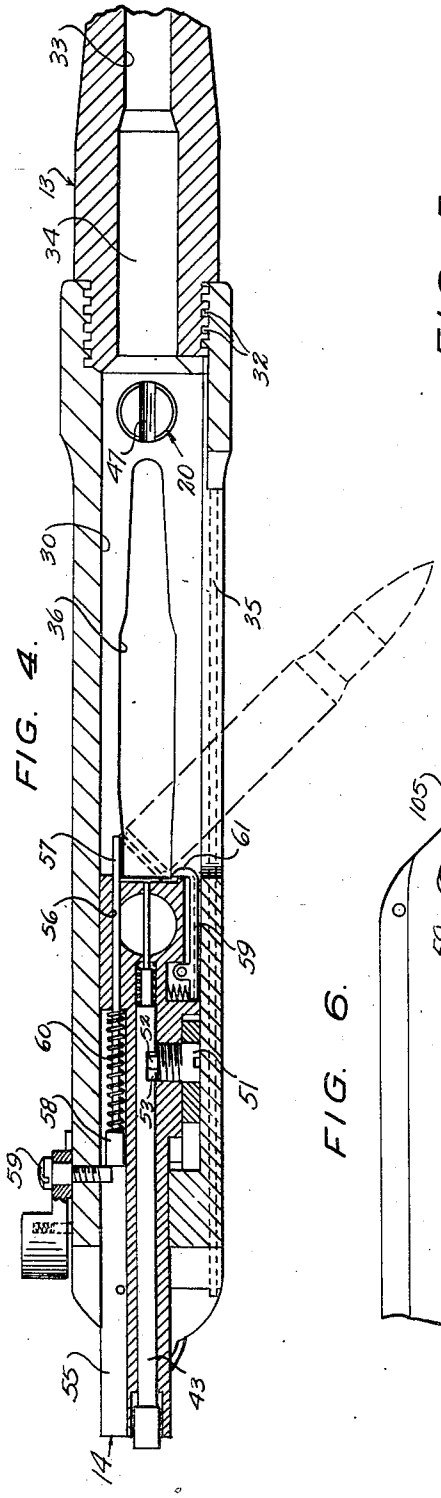


FIG. 4.

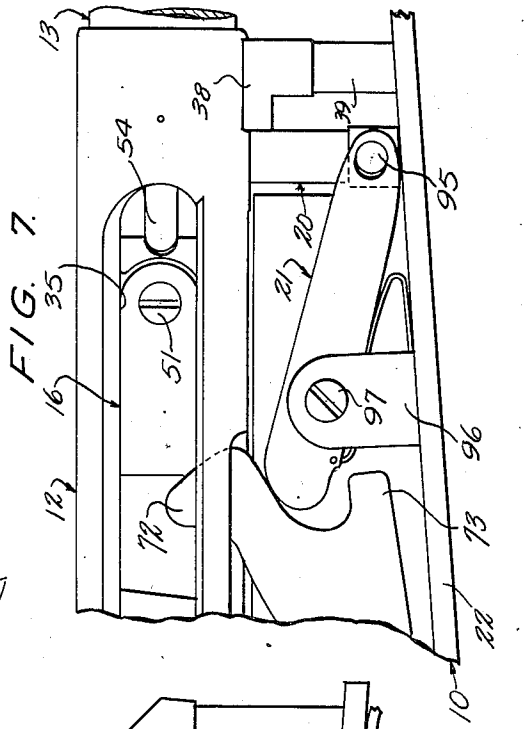


FIG. 7.

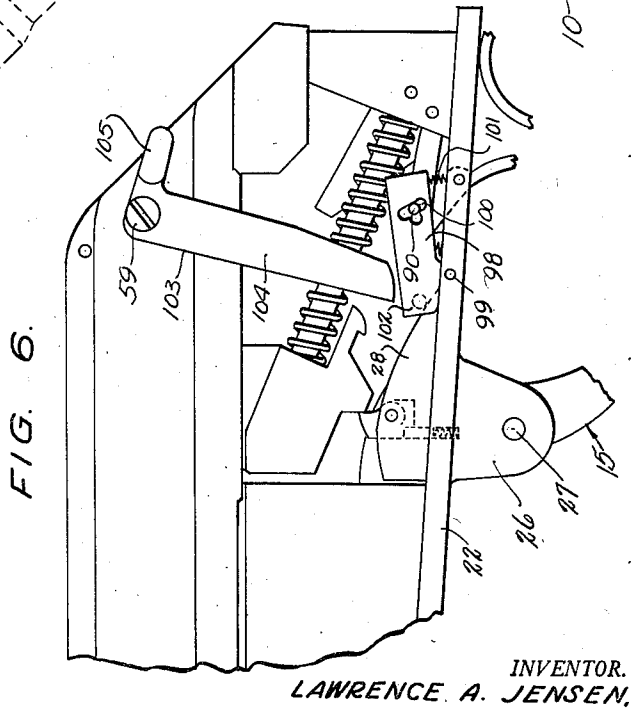


FIG. 6.

INVENTOR.
LAWRENCE A. JENSEN.
BY
McMorrow, Berman + Davidson
ATTORNEYS.

Aug. 12, 1952 L. A. JENSEN 2,606,383

LEVER ACTION FIREARM

Filed Sept. 6, 1949 4 Sheets-Sheet 4

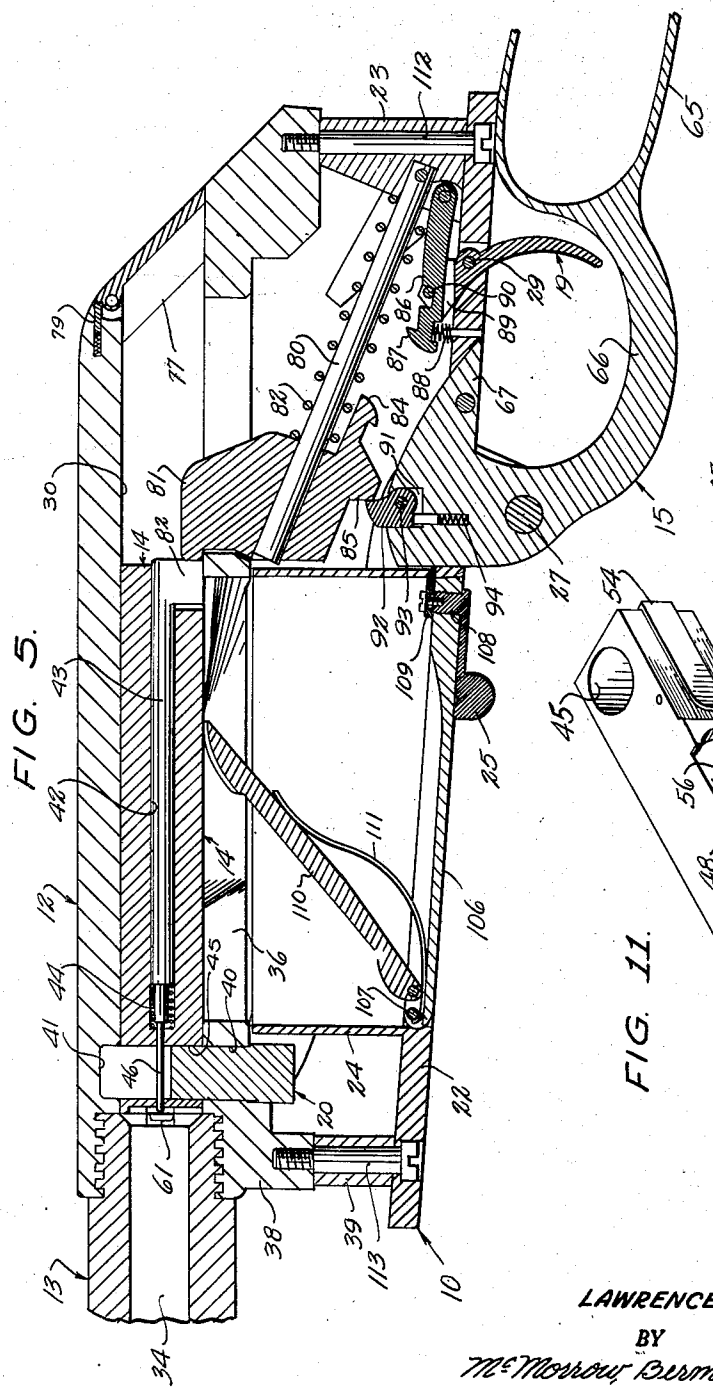


FIG. 5.

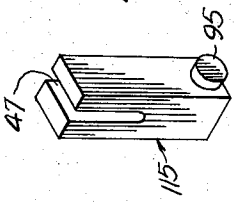


FIG. 13.

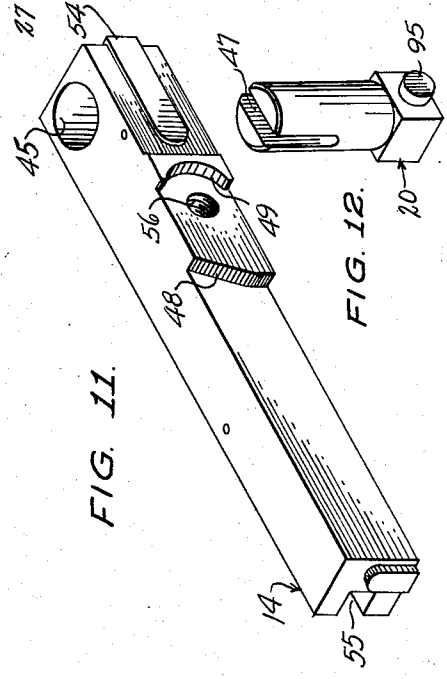


FIG. 11.

FIG. 12.

INVENTOR.
LAWRENCE A. JENSEN,
BY
McMorrow, Berman & Davidson
ATTORNEYS

Patented Aug. 12, 1952

2,606,383

UNITED STATES PATENT OFFICE

2,606,383

LEVER ACTION FIREARM

Lawrence A. Jensen, Lake City, Fla.

Application September 6, 1949, Serial No. 114,078

3 Claims. (Cl. 42—16)

1

This invention relates to lever action firearms, and more particularly to a high-powered, lever action rifle.

It is among the objects of the invention to provide an improved lever action rifle which is capable of safely using high-powered charges, such as regular .30-'06 caliber military ammunition, which includes a strong and positive bolt lock which cannot be released by the recoil of the charge or accidentally released, which includes a bolt-and-hammer arrangement which permits the use of an extremely short breech or receiver and the use of a cartridge magazine at the breech end of the rifle barrel, which is constructed to substantially eliminate binding or jamming even in the presence of grit or other foreign material in the mechanism, which is extremely easy to operate, and which is strong, simple and durable in construction, and economical to manufacture.

Other objects and advantages will become apparent from a consideration of the following description and the appended claims in conjunction with the accompanying drawings, wherein:

Figure 1 is a side elevation of a fragmentary portion of a firearm illustrative of the invention with the stock removed to illustrate the lever-operated bolt action of the firearm;

Figure 2 is a top plan view of the firearm portion illustrated in Figure 1;

Figure 3 is a view similar to Figure 1, but with the parts in a different operative position from that illustrated in Figure 1;

Figure 4 is a longitudinal cross-section on the line 4—4 of Figure 3;

Figure 5 is a longitudinal cross-section on the line 5—5 of Figure 2;

Figure 6 is a side elevation of a fragmentary portion of the opposite side of the firearm from that illustrated in Figures 1 and 3;

Figure 7 is a side elevation of a fragmentary portion of the side of the firearm illustrated in Figures 1 and 3, illustrating an intermediate stage in the operation of the mechanism between the terminal stages illustrated in Figures 1 and 3;

Figure 8 is a transverse cross-section on the line 8—8 of Figure 3;

Figure 9 is a perspective view of a link constituting an operative component of the mechanism;

Figure 10 is a cross-section on the plane of the cross-section of Figure 5 of a fragmentary portion of the mechanism illustrating a modified form of locking pin for the rifle bolt;

Figure 11 is a perspective view of a rifle bolt constituting an operative component of the mechanism;

2

Figure 12 is a perspective view of a locking pin for the bolt illustrated in Figure 11; and

Figure 13 is a perspective view of a further modified form of locking pin.

With continued reference to the drawings, the lever action mechanism comprises, in general, an elongated frame 10 receivable in the hollowed out forearm of a gun stock 11, or otherwise securely attached to the gun stock, a receiver 12 mounted on the frame 10 and receiving, at its forward end, the rear or breech end of the barrel 13, a bolt 14 slidable in the receiver, a combined lever-and-trigger guard 15 pivotally mounted intermediate its length on the frame 10 and having a portion extending through the frame and into the receiver, a link 16 pivotally connected to the bolt 14 and engaged by the lever 15 for moving the bolt rearwardly and forwardly in the receiver 12 upon movement of the lever 15 about its pivotal connection with the frame 10, a hammer 17 mounted in the frame, a hammer spring 18, a trigger 19 pivotally mounted in the frame 10 adjacent the pivotal connection between the frame and the lever 15 and engageable with the hammer to hold the hammer in cocked position, a locking pin 20 for the bolt slidably mounted in the receiver 12, and a pin-operating arm 21 pivotally mounted intermediate its length on the frame 10 and connected at one end to the pin 20, the arm being operatively engaged at its opposite end by the lever 15 for projecting and retracting the locking pin.

The frame 10 comprises a flat, elongated bottom plate 22 having, near its rearward end, an upwardly-projecting, longitudinally-apertured post 23. A rectangular magazine box 24 is mounted on the plate intermediate the length thereof and encloses a magazine chamber and the plate is provided, near its front end with a screw hole for a screw or bolt which attaches the frame at its front end to the receiver 12 at the front end of the latter. The plate 22 has an opening therethrough within the area of the magazine box 24 for inserting cartridges through the plate into the magazine box, and this opening is closed by a hinged door latched in closed position by a latch 25 pivotally carried by the door at one end of the latter.

A pair of spaced-apart lugs 26 extends downwardly from the plate 22 near the rearward end of the magazine box 24 and these lugs are provided with registering apertures to receive a screw or pivot pin 27 by means of which the lever 15 is pivotally connected to the frame 10. The plate 22 is provided with an opening between and adjacent the lugs 26 through which the lever 15 ex-

tends, this opening being closed by the lever and lever extension 28 when the lever is in the normal or firing position, as illustrated in Figure 1, and the plate is also provided with an opening through which the trigger 19 extends, the trigger being pivotally mounted in this opening by a pivot pin 29 which extends through a part of the plate and through the trigger.

The receiver 12 is an elongated body of specially heat-treated metal alloy to resist high pressures and heavy strains, and is provided with a longitudinally-extending bore 30, the greater portion of which is of non-circular cross-sectional shape. The bore may be provided entirely within the receiver body or, in order to facilitate manufacture of the receiver, may open to one side of the receiver body, and a part of this opening may be closed by a plate 31 slidably mounted in the receiver. At the forward end of the receiver the bore 30 is made circular and is provided with screw threads or locking threads 32, as particularly illustrated in Figure 4, which receive the external threads provided on the barrel 13 at the rear end of the barrel to inter-lock the barrel with the receiver. The barrel is provided with the usual bore 33 and at the rear or breach end of the barrel this bore is enlarged or counterbored to provide the cartridge chamber 34. In one side, preferably its right-hand size, the receiver 12 is provided with an elongated opening 35 through which empty cartridges are ejected from the receiver, and in line with this opening is provided in its bottom wall with an opening 36 through which cartridges pass from the magazine into the receiver.

At its rearward end the receiver 12 is provided with an extension 37 projecting downwardly from the bottom wall of the receiver, and this extension is provided with a screw-threaded well which receives the screw-threaded end portion of a screw or bolt extended through the plate 22 and post 23 and threaded into the receiver extension 37 to firmly secure the frame at its rear end to the receiver at the rear end of the latter. At its forward end the receiver is provided with a second extension 38 which projects downwardly from the bottom side of the receiver, and is provided with a screw-threaded well which receives a bolt extended through the plate 22 and through a tubular spacer 39 and threaded into the well in the extension 38 to firmly secure the frame 10 at its forward end to the receiver at the forward end of the latter. The frame plate 22 is spaced from the bottom side of the receiver and is preferably slightly inclined forwardly toward the receiver.

Near its forward end and adjacent the extension 38, the receiver 12 is provided, in its lower side, with an aperture 40, the center line of which is substantially perpendicular to the center line of the longitudinal bore 30, and the receiver is provided at the upper side of the bore 30 with a recess 41 in alignment with the opening or aperture 40. The aperture 40 slidably receives the bolt-locking pin 20 and when this pin is in seated position, as illustrated in Figure 5, its upper end is received in the recess 41 so that the locking pin is firmly held in the receiver.

The bolt 14, as particularly illustrated in Figures 5 and 11, is an elongated body of metal of non-circular and preferably a substantially rectangular cross-sectional shape having a close sliding fit in the bore 30 of the receiver. The cartridge-admitting opening 36 has a length just slightly greater than the length of a cartridge to be used in the firearm, and the bolt 14 has a length only slightly greater than the length of this cartridge-admitting opening. That is, the bolt 14 is not materially longer than a cartridge, and the receiver 12 is less than twice the length of the bolt, so that the lever-operated bolt action of the present invention permits the use of an extremely short receiver element of the rifle.

The bolt 14 has a longitudinally-extending bore 42 within which is slidably mounted a firing pin 43 which is resiliently urged rearwardly of the bolt by a compression spring 44 interposed between an annular shoulder on the firing pin and the front end of the bore 42. Near its front or forward end the bolt is provided with a transverse opening 45 of a size and shape to slidably receive the locking pin 20, and the front end of the bolt is shaped to seat against the base or bottom end of a cartridge received in the chamber 34. The bore is provided with a reduced extension extending from the forward end of the bore 42 to the front end of the bolt and the firing pin has a reduced extension 46 which extends through the reduced extension of the bolt bore and across the aperture 45. The locking pin 20 is bifurcated at its upper end, as particularly illustrated in Figure 12, providing a deep notch 47 which receives the extension 46 of the firing pin when the locking pin is moved to its bolt-locking position, as illustrated in Figure 5.

The locking pin 20 is operated by the lever 15 to lock and release the bolt 14 in a manner presently to be described.

The bolt 14 is cut away on its side adjacent the opening 35 from the rear end to a position intermediate the length of the bolt to provide a recess terminating at its front end in an inclined shoulder 48, and forwardly of this recess the bolt is also recessed to provide an arcuate shoulder 49 spaced from the front end of the bolt, the two recesses providing a stepped formation in the side of the bolt. Adjacent the shoulder 49 the bolt is provided with a screw-threaded aperture 50 which extends to the bore 42, and a screw 51, particularly illustrated in Figure 4, is threaded into this recess and has, at its inner end, a small extension 52 received in a notch 53 in the firing pin 43 to limit longitudinal movement of the firing pin in the bolt. The head of the screw 51 is cylindrical and projects outwardly from the side of the bolt at the outer end of aperture 50 a distance substantially equal to the thickness of the shoulder 49.

Ahead of the shoulder 49 the bolt is provided with a longitudinally-extending recess or groove and an extractor 54 is pivotally mounted in this recess and has a cartridge-engaging lip disposed at the front end of the bolt. The side of the bolt opposite the above-mentioned recess side thereof is provided with a longitudinally-extending groove 55 of rectangular cross-sectional shape which terminates short of the front end of the bolt, and with a small bore 56 extending from the front end of the groove 55 to the front end of the bolt. An ejector pin 57 is slidably mounted in the bore 56 and extends rearwardly in the groove 55. This pin is provided on its rearward end with an abutment block 58 which bears against the inner end of a screw 59 threaded through a screw-threaded aperture provided in the side wall of the receiver, and a tension spring 60 interposed between the block 58 and the front end of the groove 55 in the receiver resiliently maintains the block 58 against the

screw 59. With this arrangement, when the bolt 14 is moved rearwardly in the receiver with the lip 61 of the extractor 54 engaging the rim of a cartridge, the rim of the cartridge at the side thereof opposite the lip 61 will strike the forward end of the ejector 57 substantially at the time the front end of the bolt reaches the rear end of the opening 35, and the cartridge will be thrown out through the opening 35, as indicated in dotted lines in Figure 4.

The lever 15 has, at one end, a finger loop 65 which is disposed immediately to the rear of the trigger 19 when the lever is in the normal or firing position, as illustrated in Figures 1 and 5, and has, immediately ahead of the loop 65, a curved, trigger-guard portion 66 which is pierced near its forward end to receive the pivot bolt 27. Just beyond the pivot bolt 27 from the trigger-guard portion 66, the lever is provided with an extension 67 which projects rearwardly toward the finger loop 65 and is provided with a transverse aperture 69 in which is mounted a spring detent, particularly illustrated in Figure 8. This aperture is provided, at one end, with an internal annular shoulder and a detent member 68 is slidably mounted in the aperture and is provided, at one end, with an annular shoulder which engages the internal shoulder at the end of aperture 69, so that the detent member cannot move out of the aperture. The aperture, at its end opposite this internal shoulder, is provided with screw threads and a plug 70 is threaded into this end of the aperture, and a compression spring 71 is disposed in the aperture between the detent member 68 and the plug 70 to resiliently urge the hemispherical end portion of the detent member outwardly of the aperture. The frame plate 22 is provided in the opening thereof receiving the extension 67 with a recess in which the detent member 68 engages to releasably latch the lever 15 in its normal or firing position.

Beyond the extension 67 the lever extends to a head 72 and has a thumb 73 spaced from the head 72 and separated from the head by a rounded notch 74.

The link 16 is pivotally connected at its forward end to the bolt 14 by the head screw 51 which is received in an aperture provided in the link, and the link has its side adjacent the bolt stepped to substantially contact the stepped surfaces of the recessed side of the bolt. Near its free or rearward end, the link 16 is provided with an elongated, transverse slot 76 in which the head 72 is received. The opposite sides or corners of the head are arcuately rounded so that the head can easily turn in this lot 76 in the link.

With this arrangement, when the finger loop portion 65 of the lever 15 is moved downwardly and forwardly from the position illustrated in Figure 1 to the position illustrated in Figure 3, the head 72, engaged in the slot 76 of the link 16, will move the link rearwardly and the link will, in turn, move the bolt rearwardly to a position in which the bolt uncovers the opening 35, and its rear end extends rearwardly of the receiver 12, as particularly illustrated in Figure 3. The receiver 12 is provided, at its rear end, with a downwardly and rearwardly-inclined, internal ramp 77 which contacts the rear end of the link 16 and forces the rear end of the link downwardly as the link is moved rearwardly by the lever head 72, so that the rear end of the link follows the arcuate movement of the lever head about the axis of the pivot pin 27.

The bore 30 in the receiver opens to the rear end of the receiver, and a small trap door 78 is pivotally connected at its upper end to the receiver at the upper side of the bore and is effective to close this rear end of the bore when the bolt 14 is within the receiver to prevent foreign matter from entering the bore of the receiver and also to prevent the ejection of oil or smoke from the gun in the event a cartridge primer should be punctured by the firing pin. When the rear end of the bolt 14 projects out of the rear end of the receiver, as illustrated in Figure 3, the door 78 is swung upwardly out of the way against the force of a small spring detent 79 mounted in a recess provided in the upper side of the receiver at the rear end of the latter.

It will be noted that the rear end of the receiver is inclined forwardly and upwardly to somewhat follow the contour of the top edge of the gun stock and avoid personal injury in the event that the rear end of the receiver should come into contact with the face of a person firing the rifle when the rifle is subjected to recoil.

A hammer pin 80 is mounted at its rearward end in a well in the post 23 and is inclined upwardly and forwardly between this post and the rear end of the magazine box 24 within the space between the plate 22 and the receiver providing a hammer-receiving chamber. A hammer 81 is provided with a transverse aperture in which the pin 80 is slidably received, and a coiled compression spring 82 surrounds the pin between the hammer and the post 23 to drive the hammer forwardly and into contact with an anvil 83 provided on the rear end of the firing pin 43. The hammer is provided with a dog 84 and with a downwardly-extending tooth or projection 85 forwardly of and adjacent the dog. A sear 86 is pivotally connected at its rear end to the post 23 and provided at its front end with a dog-engaging detent 87. This sear is resiliently urged upwardly to dog-engaging position by a compression spring 88 interposed between the plate 22 and the sear, near the forward end of the latter, and is moved downwardly to release the dog 84 by the trigger 19. The trigger is provided above the plate 22 with an extension 89 which extends past the sear and carries a pin 90 engaging in a notch provided in the upper edge of the sear at a location ahead of the trigger pin 29 so that when the trigger is pulled rearwardly the front end of the sear will be pulled downwardly against the force of spring 88.

Adjacent the extension 67, the lever 15 is provided with a recess 91 and a pawl 92 pivotally mounted in this recess by a pivot pin 93, and is engageable with the tooth 85 on the hammer. With the hammer in its released position, which it occupies after the rifle has been fired, and with the lever 15 in its normal or firing position, both as illustrated in Figure 1, when the loop portion 65 of the lever is moved downwardly and forwardly, the pawl 92 contacting at its rear side, the front side of the hammer tooth 85 will force the hammer rearwardly along the guide pin 80 until the dog 84 is engaged by the detent of the sear 86, after which the pawl passes below the lower end of the tooth, so that the lever can be moved through its complete range of movement to the limiting position illustrated in Figure 3. When the lever is then returned to the firing position, the hammer is left in cocked position, being held in such position by the sear 86 with the spring 82 compressed. When the trigger is then pulled, the dog 84 is released from the sear and

the hammer is driven forwardly, striking the firing pin anvil 83 and firing a cartridge in the chamber 34. In order to cushion the impact of the hammer tooth 85 against the pawl 92, the pawl is pivotally mounted in the lever recess 91 in a manner such that it has a very slight freedom of movement, a few thousandths-of-an-inch being sufficient, and is resiliently urged toward the hammer tooth by a compression spring 94 seated in a well in the lever and bearing against the inner side of the pawl at a location spaced from the pivot pin 93.

During the initial part of the movement of the lever from the normal or firing position, illustrated in Figure 1, toward the position illustrated in Figure 3, the thumb 73 of the lever contacts the under side of the rearward end of the arm 21, raising this rearward end of the arm and pulling the forward end of the arm downwardly. The forward end of the arm 21 is pivotally connected to the locking pin 20 through a lost-motion connection including a boss 95 on the locking pin extending through an elongated aperture in the arm, and as the rearward end of the arm is raised and the forward end lowered, the locking pin 20 will be pulled downwardly out of the recess 41 in the upper portion of the receiver and out of the recess 45 in the bolt 14, thereby freeing the bolt for rearward movement in the receiver. As is clearly illustrated in Figure 1, the head 72 of the lever 15 is spaced sufficiently from the rear end of the slot 76 in the link 16 to permit the locking pin to be fully withdrawn before the lever head begins to move the link 16 and bolt 14 rearwardly. After the pin has been withdrawn sufficiently to clear the bolt, the head 72 contacts the shoulder at the rear end of the slot 76 and moves the bolt rearwardly, as explained above, until the shell of the fired cartridge is ejected through the opening 35 and a fresh cartridge is fed into the receiver from the magazine. Reversing the movement of lever 15 will now move the link 16 and bolt 14 forwardly, forcing the new cartridge into the barrel chamber 34, but the lever head will not contact the rear end of arm 21 until the bolt has been moved completely to its forward position. After the bolt has been brought to its limiting, forward position, the lever head contacts the rear end of arm 21, and the front end of arm 21 is raised, inserting the locking pin through the aperture in the bolt and into the recess 41 in the upper part of the receiver to lock the bolt against rearward movement relative to the receiver when the cartridge is fired.

The arm 21 is pivotally mounted, intermediate its length, on an apertured lug 96 extending upwardly from the plate 22 by a pivot screw 97 extending through the aperture in the lug 96 and threaded into the arm and a V-shaped spring 130 is interposed between this arm and the frame plate 22 to resiliently urge the arm about the pivot pin 97 in a direction to withdraw the locking pin 20. This spring thus assists the hand lever 15 in withdrawing the locking pin and holds the locking pin in withdrawn position while the bolt is to the rear of its firing position.

A safety lock for the rifle is particularly illustrated in Figure 6, and comprises a small, flat bar 98 pivotally connected at its forward end to the plate 22 by a pivot pin 99, and having near its rearward end a T-shaped opening 100.

The trigger-carried pin 90 projects through the T-shaped opening 100 and the arrangement is such that the trigger cannot be moved to release the sear unless the pin 90 is opposite the stem portion of the T-shaped opening. A small spring 101 resiliently urges the rear end of the bar 98 upwardly, so that the pin 90 will be located in the lower end portion of the cross of the T-shaped opening, and the trigger will be locked. A stud 102 extending laterally from the bar 98, near the front end of the latter, is contacted by the top of the extension 28 of the lever 15 when the lever is brought to firing position, and the rear end of the lever is moved downwardly by this contact to bring the stem portion of the T-shaped opening opposite the pin 90, so that the trigger can be removed to release the sear from the hammer. A bell crank 103 is pivotally mounted, at its end, on the screw 59 and has one leg 104 extending downwardly substantially to the top edge of the bar 98. The other leg of this bell crank constitutes a handle 105 by means of which the bell crank can be moved about the screw 59. When the handle 105 is raised, the leg 104 of the bell crank is moved rearwardly at its lower end and contacts the bar 98 forcing the rearward end of the bar downwardly against the force of spring 101 until the pin 90 is in the upper end portion of the cross of the T-shaped opening 100, so that the trigger is locked and cannot be moved to release the sear from the hammer. In order to fire the gun, the lever 15 must be moved completely to its firing position, insuring that the locking pin 20 is fully projected through the bolt and into the recess 41 in the receiver, and the handle 105 must be in firing position.

The door 106 of the magazine box is pivotally connected at its forward end to the plate 22 by a hinge pin 107, and the latch 25 comprises an arm disposed against the lower or outer side of the door, a stem 108 extending through an aperture in the door near the rearward end of the latter, and a latch dog 109 secured to the stem at the inner side of the door and having a beveled end engageable in a notch provided in the inner side of the rear wall of the magazine box 24.

An elevator arm 110 is disposed in the magazine box 24 and pivotally connected at its forward end to the door 106 near the forward end of the latter and a leaf spring 111 resiliently urges the rearward end of this arm upwardly to raise the cartridges from the magazine box into the receiver through the opening 36 as the bolt 14 is actuated by the lever 15.

The screws 112 and 113, by means of which the frame 10 is secured to the receiver 12, are clearly illustrated in Figure 5 and may be of a construction well known to gunsmiths.

A modified form of locking pin, as shown in Figure 3, is of square or rectangular cross-section instead of circular cross-section, as illustrated in Figure 12. When the rectangular locking pin is used, the apertures 40 and 45 and the recess 41 will be made of rectangular shape, and the pin 41 will be firmly held against any tendency to rotate in the receiver. Otherwise, the construction and operation of the pin, generally indicated at 115 and illustrated in Figure 13, is the same as the pin 20, illustrated in Figure 12.

In the modified arrangement shown in Figure 10, the firing pin 43' terminates at the rearward side of the locking-pin-receiving aperture 45 in the bolt 14, and a firing pin extension is carried in the modified locking pin, generally indicated at 116.

A transverse bore 117 is provided in the pin 116 and the firing pin extension 118 extends through this bore to the front end of the bolt. A counter-

bore 119 is provided in the bore 117, at the end thereof adjacent the firing pin 43, and an enlargement 120 on the rearward end of the firing pin is slidably received in this counterbore. A compression spring 121 disposed between the front end of the counterbore 119 and the enlargement 120 resiliently urges the firing pin extension 117 rearwardly and this rearward movement is limited by a pin 122 extending from the locking pin into an elongated slot 123 provided in the enlargement 120 of the firing pin extension.

With this construction, when the firing pin 43' is struck by the hammer 17, it strikes the extension 118 and drives this extension forwardly of the bolt 14 to fire a cartridge held in the chamber 34 by the bolt. This construction avoids the necessity of bifurcating the locking pin in order to have the locking pin straddle the portion of the firing pin extending through the locking-pin-receiving aperture in the bolt.

The invention may be embodied in other specific forms without departing from the spirit or essential characteristics thereof. The present embodiments are, therefore, to be considered in all respects as illustrative and not restrictive, the scope of the invention being indicated by the appended claims rather than by the foregoing description, and all changes which come within the meaning and range of equivalency of the claims are, therefore, intended to be embraced therein.

What is claimed is:

1. In a lever operated rifle bolt action, a receiver having a bore extending longitudinally therethrough and a transversely extending aperture adjacent the front end thereof, a bolt longitudinally slidable in said bore toward and away from a breech closing position therein and having near its front end a transversely extending aperture registering with the aperture in said receiver when said bolt is in said breech closing position, a frame attached to said receiver and extending longitudinally of the latter in spaced relationship thereto, a hand lever pivotally mounted intermediate its length on said frame for swinging movement about an axis transverse to the frame and having one end disposed within the latter and adjacent to the bolt, means including a link connecting one end of said lever to said bolt for movement of the latter toward and away from said breech closing position upon swinging movement of said hand lever, said means providing a limited freedom of swinging movement of said hand lever without moving said bolt when said bolt is in said breech closing position, a locking pin slidably received in the aperture in said receiver and received in the aperture in said bolt when the latter is in its breech closing position to positively lock said bolt in said breech closing position against recoil forces, an arm pivotally connected near one end to said frame for rocking movement about a second axis transverse to said frame and connected at its other end to said locking pin, means on said one end of said hand lever engaging said one end of said arm when said bolt is in said breech closing position and effective upon movements of said hand lever within said limited freedom of movement to move said locking pin into and out of locking engagement with said bolt, and spring means acting between said arm and said frame resiliently urging said locking pin out of locking engagement with said bolt.

2. In a lever operated rifle bolt action, a receiver having a bore extending longitudinally therethrough and a transversely extending aperture adjacent the front end thereof, a bolt longitudinally slidable into said bore to and away from a breech closing position in said receiver and having near its front end a transversely extending aperture registering with the aperture in said receiver when said bolt is in said breech closing position, a frame attached to said receiver and extending longitudinally of the latter in spaced relationship thereto, a hand lever pivotally mounted intermediate its length on said frame for swinging movement about an axis transverse to said frame and having one end disposed within the frame and adjacent said bolt, a link disposed longitudinally of one side of said bolt and having a laterally opening recess near one end thereof, means pivotally connecting said link near its other end to said bolt, a head on said one end of said hand lever received in the recess in said link for moving said bolt to and away from said breech closing position upon swinging movement of said lever, said head having a lost motion in said recess providing a limited freedom of swinging movement of said lever without moving said bolt when the latter is in its breech closing position, a locking pin slidably received in the aperture in said receiver and received in the aperture in said bolt when the latter is in its breech closing position to positively lock said bolt in said breech closing position against recoil forces, an arm pivotally connected near one end to said frame for rocking movements about a second axis transverse to said frame and connected at its other end to said locking pin, and means on said one end of said hand lever engaging said one end of said arm when said bolt is in said breech closing position and effective upon movement of said hand lever within said limited freedom of movement to move said locking pin into and out of locking engagement with said bolt.

3. In a lever operated rifle bolt action, a receiver having a bore extending longitudinally therethrough and a transversely extending aperture adjacent the front end thereof, a bolt longitudinally slidable into said bore to and away from said breech closing position and having near its front end a transversely extending aperture registering with the aperture in said receiver when said bolt is in said breech closing position, a frame attached to said receiver and extending longitudinally of the latter in spaced relationship thereto, a hand lever pivotally mounted intermediate its length on said frame for swinging movement about an axis transverse to said frame and having one end disposed within the frame and adjacent said bolt, a link disposed longitudinally of one side of said bolt and having a laterally opening recess near one end thereof, means pivotally connecting said link near its other end to said bolt, a head on said one end of said hand lever received in the recess in said link for moving said bolt to and away from said breech closing position upon swinging movement of said lever, said head having a lost motion in said recess providing a limited freedom of swinging movement of said lever without moving said bolt when the latter is in its breech closing position, a locking pin slidably received in the aperture in said receiver and received in the aperture in said bolt when the latter is in its breech closing position to positively lock said bolt in said breech closing position against recoil forces, an arm pivotally connected near one end to said frame for rocking movements about a second axis trans-

verse of said frame and connected at its other end to said locking pin, and means on said one end of said hand lever engaging said one end of said arm when said bolt is in said breech closing position and effective upon movement of said hand lever within said limited freedom of movement to move said locking pin into and out of locking engagement with said bolt, said receiver having at its rear end an inclined ramp engaging said one end of said link and constraining the latter to follow the swinging movements of said lever head about the first mentioned axis.

LAWRENCE A. JENSEN.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
330,354	Sullenberger	Nov. 10, 1885
378,556	Redfield	Feb. 28, 1888
435,905	Shafer	Sept. 2, 1890
534,894	Laumann	Feb. 26, 1895
545,766	Bennett	Sept. 3, 1895
592,239	Davenport	Oct. 26, 1897
864,608	Browning	Aug. 27, 1907
1,057,171	Redfield	Mar. 25, 1913
1,325,400	Hochstein	Dec. 16, 1919
1,455,881	Hammond	May 22, 1923
2,386,543	Collins	Oct. 9, 1945
2,527,895	Tassan	Oct. 31, 1950

FOREIGN PATENTS

Number	Country	Date
506,730	France	June 4, 1920