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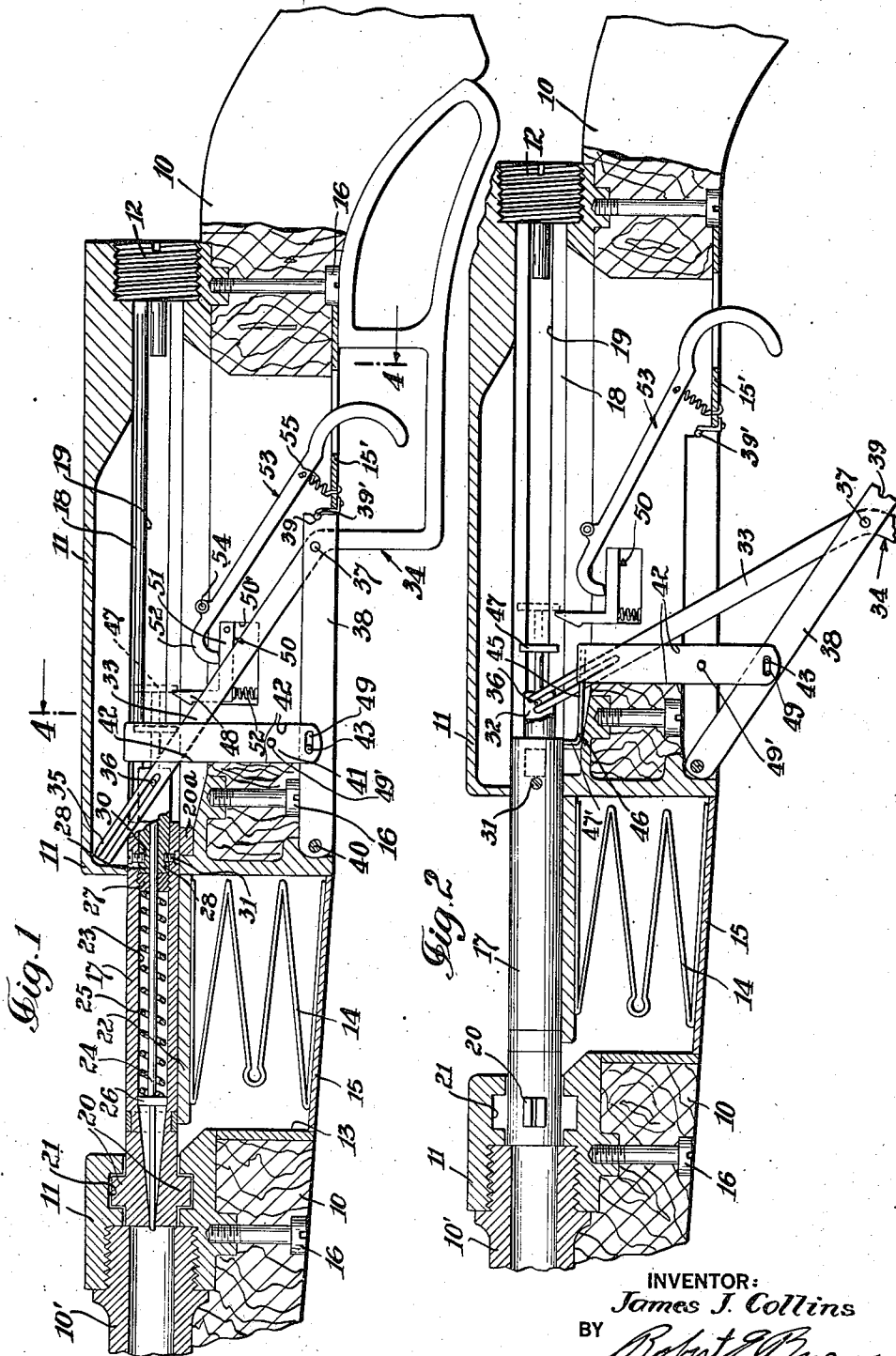
J. J. COLLINS

2,386,543

FIREARM

Filed Jan. 27, 1942

3 Sheets-Sheet 1



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Fig. 3

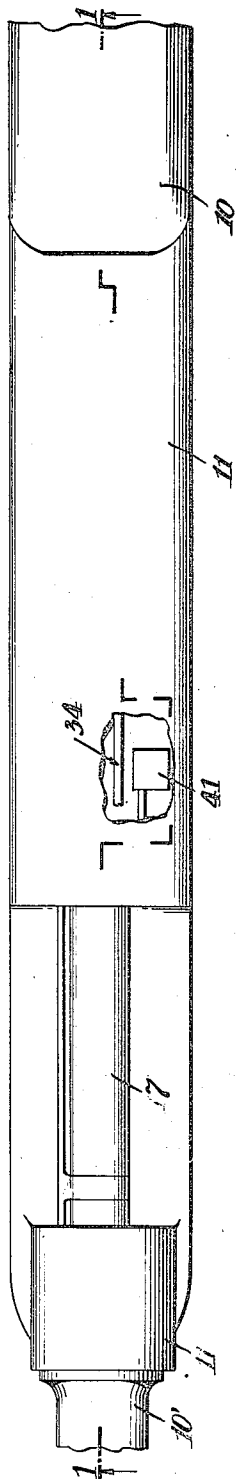


Fig. 5

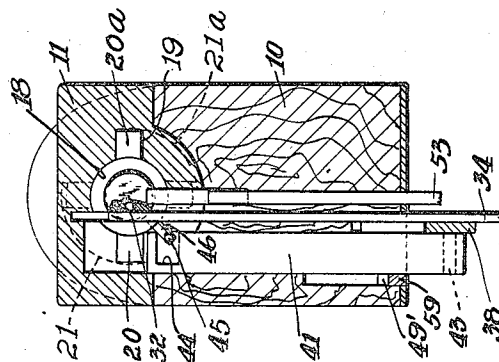
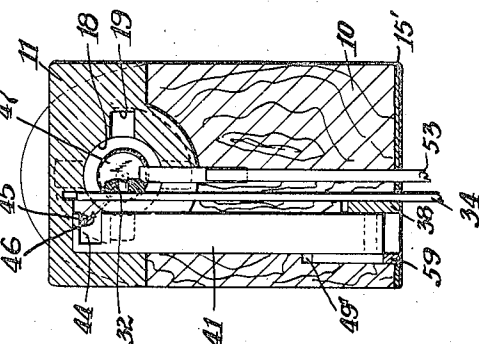


Fig. 4



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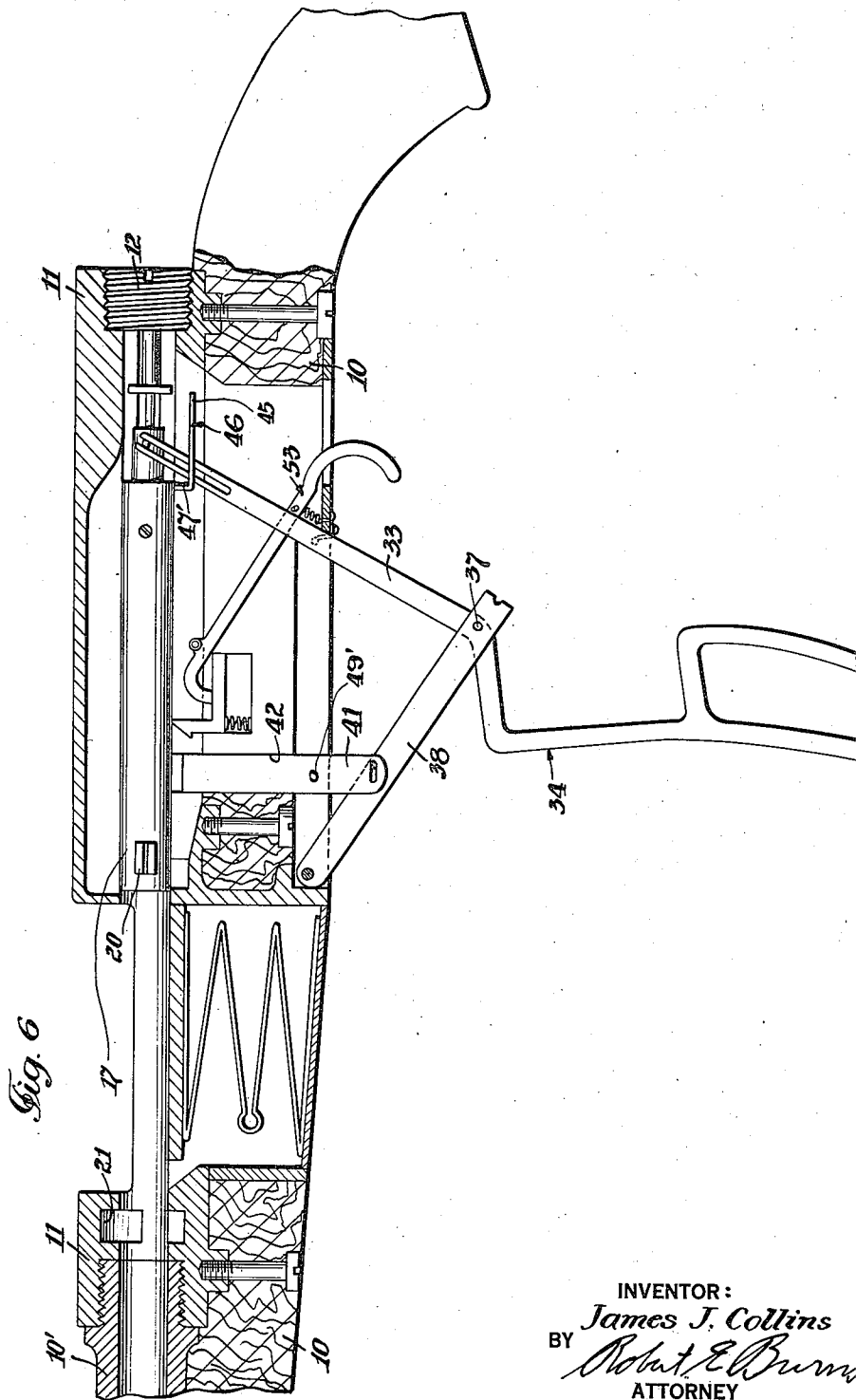
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UNITED STATES PATENT OFFICE

2,386,543

FIREARM

James J. Collins, New York, N. Y.

Application January 27, 1942, Serial No. 428,346

2 Claims. (Cl. 42—18)

This invention relates to gun constructions, and more particularly to loading and firing mechanisms of rifles, including loading mechanisms of the type in which bullets are taken from a magazine and brought into firing position.

One of the principal objects of the invention is to provide a construction of a rifle mechanism of the type where the bolt is locked at the head, in which only two movements of a swing lever are required.

A further object is to provide a rifle mechanism of the type in which high power cartridges may be used.

A further object is to provide a rifle mechanism of the type with strong locking means.

Another object is to provide a construction in which a minimum number of parts completely operate the mechanism, and in which such parts are strong and durable.

Another object is to provide a construction in which the exchange of cartridges can be done easily and speedily and with a minimum of energy.

Another object is to provide a mechanism that is not complicated, and which will work under the most unfavorable conditions and circumstances.

Another object is to provide a rifle of the type that the gunner can keep on his shoulder for reloading, as the bolt is covered and does not reach the gunner's face.

Another object is to provide a rifle of the type where the mechanism is completely enclosed in the rifle-stock for reducing vibration and providing a maximum of accuracy.

Further objects and advantages of the invention will be in part set forth in the following description and in part will be obvious therefrom without being specifically pointed out.

With the above and other objects of the invention in view, the invention consists in the novel construction, arrangement and combination of various devices, elements and parts, as set forth in the claims hereof, certain embodiments of the same being illustrated in the accompanying drawings and described in this specification.

In the accompanying drawings, which form part of the specification,

Fig. 1 is a longitudinal sectional view, taken along the line I—I of Fig. 3;

Fig. 2 is a longitudinal sectional view, similar to Fig. 1, but showing the lever and the parts connected thereto in a depressed position and showing a slight modification;

Fig. 3 is a top view of the mechanism;

Fig. 4 is a cross section taken along the line 4—4 of Fig. 1;

Fig. 5 is a cross section similar to Fig. 4, but showing the breech-bolt actuating member in its lower position; and

Fig. 6 is a longitudinal sectional view, similar to Fig. 1, but showing the lever and the breech bolt moved to its extreme position to the right.

In the following description of the drawings, in which similar numerals indicate similar parts, 10 designates a rifle-stock, which carries a barrel 10' and a receiver 11, the rear end of which is closed by a screw 12. A hollow space 13 is provided within said rifle-stock 10 to receive and hold a plurality of cartridges, and a spring 14 is provided therein to press the cartridges upwards. On the lower side of the rifle-stock 10 a metal strip 15 is fastened which provides the bottom for said hollow space 13, and against which the lower end of said spring 14 is bearing. Screws 16 connect and hold together the receiver 11 and the rifle-stock 10.

A cylindrical breech bolt 17 is slidably mounted in a central tubular boring 18 of the receiver 11. The bolt 17 carries three lugs, two lugs 20 of which mounted oppositely near the front end and one lug 20a mounted near the rear end of said bolt 17, normally locked in corresponding recesses 21 and 21a, respectively, of the receiver 11 when the bolt 17 is in its forward position. The tubular boring 18 has side grooves 19 to receive the lugs 20 and 20a when the bolt 17 is in motion. A follower member 22 rests on top of the spring 14 and carries the cartridges. The bolt 17 has a central boring 23 in which the firing pin 24 is located and also a helical spring 25, which spring presses with one end against a flange 26 that is connected to said firing pin 24, and with its other end presses against a member 27, said member being screwed into said central boring 23 and serving as a cover for it near its rear end. The member 27 has a central boring to provide passage for the firing pin 24.

A guiding element 28 is mounted in the rear portion of said central boring 23, and extends therefrom, and is provided with a circular groove 30, into which groove a plurality of screws 31 protrude for revolvably connecting the bolt 17 with said guiding element 28. At its rear end said guiding element 28 is cut away vertically to form a flat side 32, and a guiding arm 33 of a lever 34 extends with its upper portion engaging said flat side 32. The guiding arm 33 operates in a slot in the rifle-stock 10, and is bifurcated on its upper end at 35 thereby embracing in slidable

connection a horizontal pin 36 carried by said guiding element 28 on the flat side 32. The lever 34 is pivoted at 37 to the rear end of a link 38, said link being pivoted near its forward end to the rifle-stock 10 at 40. The link 38 is provided at its rear end with a groove 39 into which a resilient latch 39' reaches for holding said link resiliently in its original horizontal position. The latch is fastened to a metal strip 15' of the rifle-stock 10. A breech-bolt actuating member 41 slides in a slide 42 and is pivotally connected on its lower end to the link 38 by means of a horizontal slot 49 in said bolt actuating member and a pin 43 fastened to said link 38. Near its upper end the breech-bolt actuating member 41 has a recess 44 to receive the free arm 45 of an L-shaped member 46, connected with its other arm 47' to the bolt 17.

The rear portion of the firing pin 24 carries a cocking piece plate 47 for engaging with said plate a vertical leg 48 of an L-shaped sear 50 which is supported by a sear-spring 52 and is pivoted as shown in Fig. 1, or slides in a slide 50', as shown in Fig. 2. The horizontal leg 51 of the sear 50 is located adjacent an upper arm 52 of a trigger 53, which trigger operates in a slot of the rifle-stock 10, and is pivoted at 54 and is held in a predetermined position by a trigger spring 55 near its lower end, said lower end reaching through a slot of the metal strip 15' outside of the rifle-stock 10.

The lever 34 is bent on its lower end and in its normal position rests against the under side of the rifle stock surrounding the lower end of the trigger 53.

By having, as above described, all the mechanism within the surface of the rifle-stock 10 and the receiver 11, a streamlined rifle is provided, the advantages thereof being obvious to those skilled in this art, without the necessity of special mention.

The operation of the invention is as follows:

The firing of the bullet is in a substantially conventional manner. After the bullet has been fired, the gunner swings the lower portion of the lever 34 forward until the limit of this movement is reached. At this time the old cartridge is ejected in a manner which may be similar to a Mauser action rifle. Thereupon the gunner swings the lever 34 back to its original position, thereby loading the gun for the next shot. Such a procedure is old, but new mechanism is used in this invention, which operates as below described and which greatly simplifies the four movements heretofore used by the Mauser type, substituting the swinging of the lever, an operation requiring less energy and less attention by the gunner.

Through the initiation of the said forward swinging movement of the lower portion of the lever 34, the link 38 which is pivoted to the rifle-stock 10 at 40 swings downward and causes the breech-bolt actuating member to slide downward. On this downward movement the breech bolt actuating member 41 engages the arm 45 of the L-shaped member 46 causing thereby a rotation of the bolt 17 around its longitudinal axis unlocking thereby the lugs 20 and 20a from the corresponding recesses 21 and 21a of the receiver 11. This downward movement is terminated when a stud 49' attached to the breech bolt actuating member reaches a corresponding removable stop 59 provided with the rifle-stock, after the bolt has rotated 90 degrees.

Said stud 49' causes the termination of the downward movement of the breech bolt actuat-

ing member as soon as it abuts against the stop 59 and, as the gunner presses on against the lower portion of the lever 34 a swinging movement of the guiding arm 33 around the pivot 37 is brought about, said guiding arm swinging in a slot of the rifle-stock 10 and a slotted portion of the receiver 11. The bifurcated upper end of said guiding arm 33, through its engagement with pin 36 causes the bolt together with the firing pin to slide rearwardly into the position shown in Fig. 6, where the swinging movement is terminated by the cocking piece plate 47 reaching the projected end of the screw 12. The end of the downward movement of the link 38 and the beginning of the swinging movement of the lever 34 are shown in Fig. 2.

While the bolt 17 is being retracted, the old cartridge will be ejected and the new cartridge will be brought in under the pressure of the spring 14 from the hollow space 13.

Through the following backward swinging movement of the lever 34 the bolt is brought back to its original position, whereas the plate 47 of the firing pin 24 will be engaged during the forward movement of the bolt by the vertical leg 48 of the sear 50 under the pressure of the spring 52 against the power of the helical spring 25. Thereby the firing pin is brought out of reach of the cartridge and, ready for action through release by the trigger 53.

The continuing of the backward swinging movement of the lever 34 will bring the link 38 into its original position, thereby sliding the breech bolt actuating member 41 to its initial position, and the resilient latch 39' will engage the groove 39. The recess 44 engaging the arm 45 of the L-shaped sear 46 will cause the lugs 20 and 20a on the forward and rearward ends of the bolt 17 to engage the recesses 21 and 21a of the receiver 11 thereby locking the bolt 17 in this original position. Through pulling the trigger against the tension of the trigger spring 55 the upper arm 52 of said trigger 53 depresses the L-shaped sear 50 against the pressure of the spring 52 releasing thereby the firing pin for firing. At the subsequent retraction of the bolt by the afore described swinging movement of the lever 34, the plate 47 of the firing pin 24 and also the lower side of the bolt 17 will depress the vertical leg 48 of the L-shaped sear 50 during its rearward movement owing to the tilted shape of said vertical leg 48.

In order to clean the tubular boring 18 properly, the bolt is retracted, the screw 12 is loosened, the pivot 37 detached and, thereafter the bolt can easily be removed from the receiver.

The advantages of the invention have been, in part, referred to in what is said above, and in part will be obvious without being specifically set forth.

I do not limit myself to the particular details of construction which are shown in the accompanying drawings and described in this specification, as the same refer to only certain embodiments of the invention, and it is obvious that the same may be modified, within the scope of the appended claims, without departing from the spirit and scope of the invention.

Having thus described my invention, I claim:

1. A firearm construction comprising a stock having a slot therein for the reception of operating mechanism, a receiver secured to said stock above said slot and having a tubular bore, opposed grooves extending longitudinally of said bore, and recesses at the front ends of said

grooves, a barrel connected with said receiver in alignment with said bore, a bolt reciprocable and rotatable in said receiver bore, lugs projecting radially from said bolt adjacent its head, said lugs being received in and guided by said grooves during reciprocation of the bolt and being received in said recesses by rotation of the bolt to lock the bolt in closed position, an arm projecting radially and rearwardly from said bolt, a guiding element reciprocable in said bore and revolvably connected with the rear end of said bolt, a lever having an inner end portion projecting into said slot and operably engaging said guiding element to reciprocate said element and said bolt while being unattached thereto, and an outer end portion extending outside said stock and forming a trigger guard and a handle, said lever being pivotally connected at an intermediate point to a link pivotally connected at its forward end to said stock, and a breech bolt rotating member vertically reciprocable in said slot and having at its upper end a recess to receive said arm when the bolt is in its forward position, the lower end of said member being pivotally connected with said link intermediate the pivotal connections of the latter with the stock and with said lever.

2. In a firearm, a stock having a slot therein for the reception of operating mechanism, a receiver secured to said stock and closing the upper

side of said slot, said receiver having a tubular bore, opposed grooves extending longitudinally of said bore and recesses at the front ends of said grooves, a bolt reciprocable and rotatable in said receiver bore, lugs projecting radially from said bolt adjacent its head, said lugs being received in and guided by said grooves to hold the bolt against rotation during reciprocation and being received in said recesses by rotation of the bolt when in its forward position to lock the bolt against rearward movement, a guiding element rotatably connected with the rear end of said bolt, an operating lever having an inner end projecting into said slot and operably engaging said guiding element to reciprocate said element and said bolt, and an outer end projecting below said stock and forming a trigger guard, a link pivotally connected to an intermediate portion of said lever and pivotally connected at its forward end to said stock, a breech bolt rotating member vertically reciprocable in said slot and pivotally connected at its lower end with said link intermediate the pivotal connections of the latter with the stock and said lever, whereby said member is reciprocated by pivotal movement of said link, said member operably engaging said bolt to rotate the latter upon reciprocation of the said member.

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