

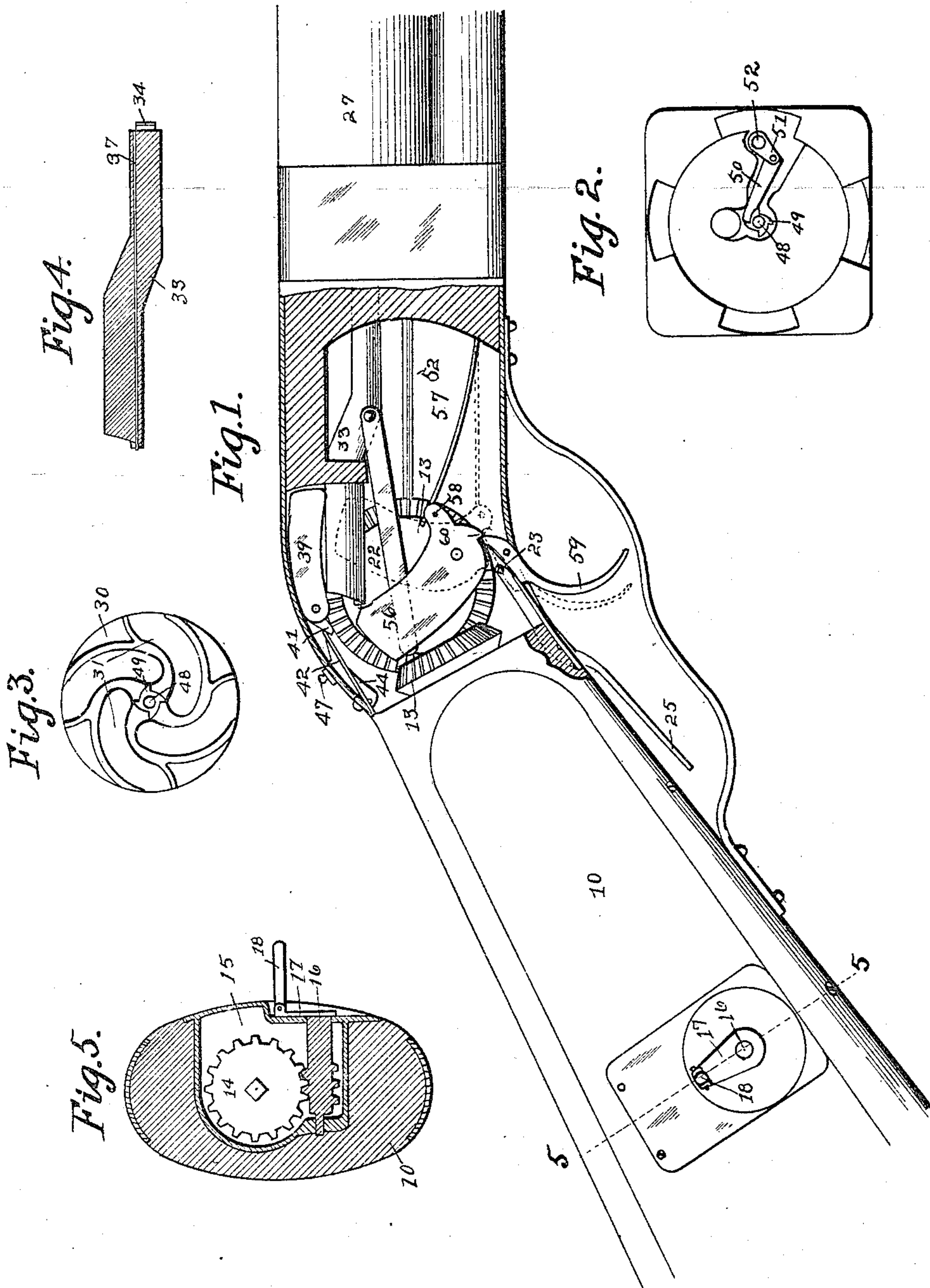
No. 847,967.

PATENTED MAR. 19, 1907.

H. M. NOECKER.
RIFLE.

APPLICATION FILED DEC. 1, 1904.

2 SHEETS—SHEET 1.



Witnesses

A. E. Heagur

J. B. Smutney

Inventor H. M. Noecker

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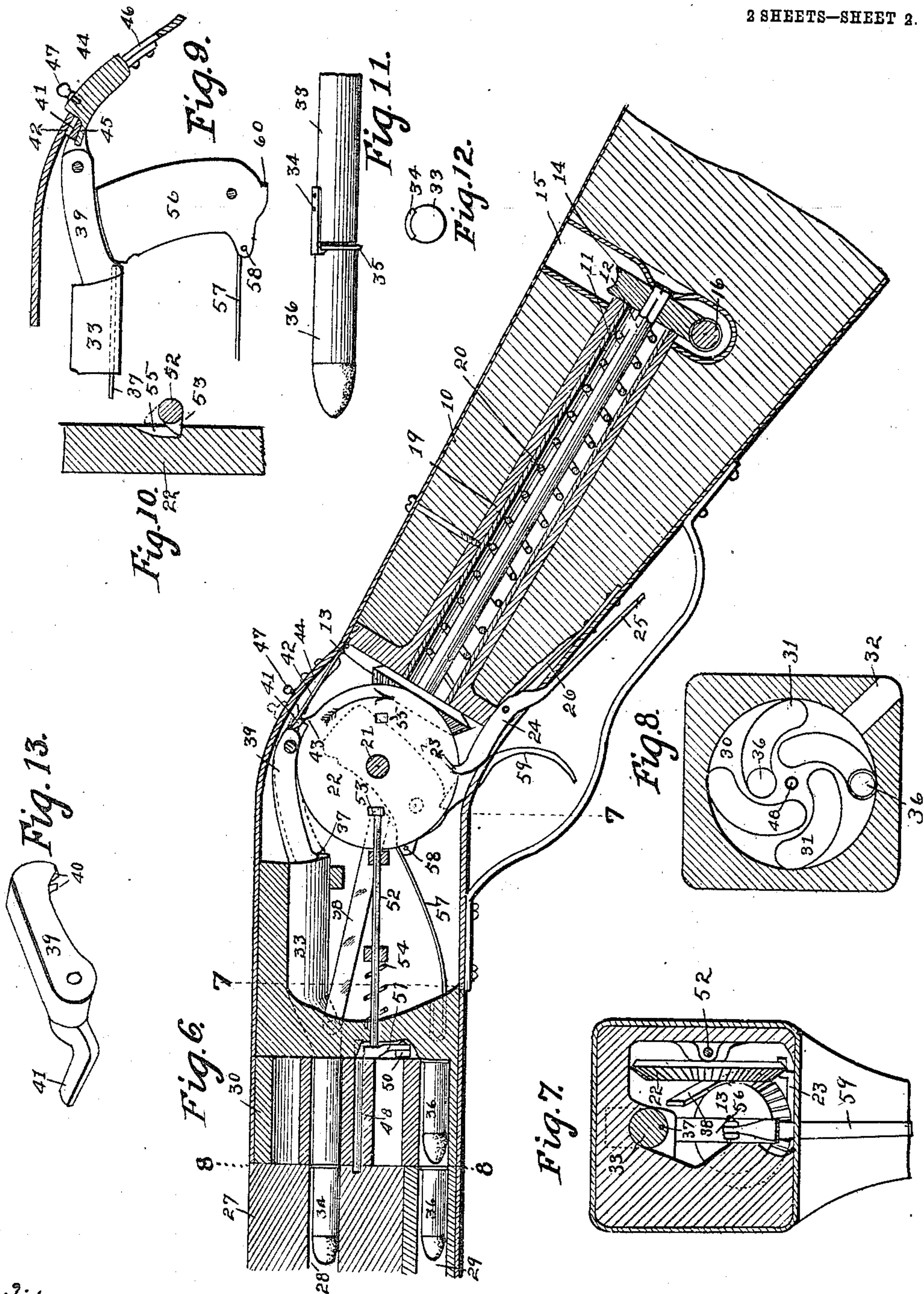
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UNITED STATES PATENT OFFICE.

HARRY M. NOECKER, OF WASHINGTON, IOWA.

RIFLE.

No. 847,967.

Specification of Letters Patent.

Patented March 19, 1907.

Application filed December 1, 1904. Serial No. 235,395.

To all whom it may concern:

Be it known that I, HARRY M. NOECKER, a citizen of the United States, residing at Washington, in the county of Washington and State of Iowa, have invented certain new and useful Improvements in Rifles, of which the following is a specification.

The objects of my invention are to provide a magazine-rifle in which the parts are so arranged as to automatically move a shell from a position immediately behind the magazine to a firing position and to maintain it in that position until the shell has been exploded by the firing mechanism and then to extract the shell from the bore of the rifle and drop it beneath the gun by the same automatic arrangement which forces the shell into position.

A further object is to provide a rifle in which the hammer of the gun is automatically thrown to a cocked position and maintained in that position until the trigger releases it and allows it to be thrown forwardly against the firing-pin.

A further and very material object is to provide a safety device for locking the gun in a cocked position and so covering up the rear of the firing-pin that it will be impossible for the hammer to strike it even if it should be released.

My invention consists in certain details in the construction, arrangement, and combination of the various parts of the device whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a portion of the gun with a portion thereof broken away to show in section the interior and operative parts of the gun-lock and breech-bolt. Fig. 2 is a detail view of the plate at the rear of the cartridge-chamber and shows a portion of the device for rotating said chamber. Fig. 3 is a front elevation of the cartridge-chamber. Fig. 4 is a longitudinal sectional view of the breech-bolt and shows a firing-pin which extends longitudinally of it. Fig. 5 is a cross-sectional view of the stock of the gun cut on the line 5 5 of Fig. 1, showing in detail the mechanism for winding up the driving-spring which operates the breech-bolt. Fig. 6 is a vertical sectional view of a portion of the gun, showing in detail the working parts of my device in position in the stock of

a gun. Fig. 7 is a sectional view cut through the line 7 7 of Fig. 6 and looking toward the rear end of the gun. Fig. 8 is a sectional view of the gun cut through the line 8 8 of Fig. 6, showing in front elevation the cartridge-chamber. Fig. 9 is a detail view of the safety device for preventing the firing of the gun when it is in a locked lower position. Fig. 10 is a sectional view of one of the beveled gear-wheels which operates the breech-bolt and shows in detail the device for rotating the shaft which causes the cartridge-chamber to be rotated as the said beveled gear-wheel is rotated. Fig. 11 is a detail view of the forward end of the breech-bolt, showing the device for grasping the rear of the cartridge. Fig. 12 is a front elevation of the breech-bolt, and Fig. 13 shows in detail the locking mechanism for holding the breech bolt at its forward limit of movement while the rifle is being fired.

Referring to the accompanying drawings, I have used the reference-numeral 10 to indicate the stock of the gun, having an opening 11 extending throughout a portion of it with the shaft 12 mounted therein, said shaft having a bevel gear-wheel 13 mounted at its upper forward end and having the gear-wheel 14 mounted at its lower end. There is a chamber 15 provided for the gear-wheel 14 at the lower end, and a shaft 16, having a worm-gear on its inner end in mesh with the gear-wheel 14. Attached to the outer end of the shaft 16 is a crank 17, having the handle 18 pivoted thereto. This handle is so arranged that when it is swung to its outer limit of movement it forms a mechanism whereby the shaft 16 can be easily rotated, and thus cause the worm-gear to rotate the gear-wheel 14. The bevel gear-wheel 13 is loosely mounted on the shaft 12. Firmly attached at its upper end to the rear of the bevel gear-wheel is a sleeve 19, which extends around the shaft and some distance away from it. Firmly attached at one end of the sleeve and extending around the shaft 12 and attached at its other end to said shaft is a coil-spring 20, so arranged that as the shaft is rotated by means of the worm gear-wheel which is in mesh with the gear-wheel 14, which is firmly attached to the shaft 12, the coil-spring will be wound up, and inasmuch as the worm-gear maintains the shaft in a rigid position constantly the sleeve 19 and the bevel gear-wheel which is attached to it

will be rotated by said spring except when said wheel 13 is locked against rotary movement, as hereinafter described.

It will be clearly seen that when the handle 18 is not in use that it can be folded against the cranks 17, and thus be so arranged that it will show but little on the surface of the stock of the gun.

Extending across the upper portion of the stock of the gun and in front of the bevel gear-wheel 13 is a shaft 21, upon which the bevel gear-wheel 22 is rotatably mounted. This bevel gear-wheel 22 is in mesh with it and designed to be driven by the bevel gear-wheel 13 in the directions shown by the arrow on said wheel in Fig. 6 of the drawings. I have provided a notch 23 in the periphery of the bevel gear-wheel 22, into which the upper forward portion of a releasing-trigger is designed to extend. This releasing-trigger I have designated by the numeral 24 is pivotally attached to the forward lower portion of the gun-stock and has the handle 25 extending rearwardly from its pivotal point. This trigger is designed to be normally held in engagement with the periphery of the beveled gear-wheel 22 by means of the leaf-spring 26. This trigger prevents the beveled gear-wheel 22 and 13 from being driven by the spring 20. However, as soon as this trigger is thrown out of the notch 23 the spring will cause the wheel to be driven a single revolution until the trigger 24 is again forced into the notch 23 and thus prevents further rotation of said beveled gear-wheel 22.

The reference-numeral 27 indicates the barrel of the gun having the bore 28 therein and having the magazine-chamber 29 mounted beneath it, said barrel-bore and magazine-chamber being constructed in the ordinary way. Rotatably mounted at the rear of the bore and magazine-chamber is a cartridge-chamber 30, having a series of curved slots 31 therein, as shown clearly in Fig. 8 of the drawings. This cartridge-chamber is designed to receive the cartridges as they are forced rearwardly from the magazine-chamber by the spring at the forward end of said chamber and to move the cartridge from the position at the rear of the magazine to a position immediately behind the bore of the rifle as the magazine-chamber is rotated in the manner hereinafter described. The cartridge which has been moved from this position at the rear of the magazine to a position immediately behind the breech of the gun is then forced into position by my breech-bolt in the manner to be set forth. After the firing of the rifle, the cartridge is to be drawn out into the same slot 31 as that which placed it in position at the rear of said opening by means of the extractor, and then the cartridge-chamber 30 is rotated a certain distance and the cartridge is allowed to fall out through an opening 32 in the lower side of

the gun when the slot in which the cartridge is comes to position immediately at one side of the opening 32.

Slidingly mounted in the gun and at the rear of the cartridge-chamber 30 when in certain positions is a breech-bolt 33, having a catch 34 at its forward end, which is designed to pass over the rim 35 at the rear of each of the cartridges 36, when the cartridge is in its position in the bore of the rifle. Extending through the breech-bolt 33 and slidingly mounted in it is a firing-pin 37, designed to be forced forwardly by the hammer, and thus cause the cartridge to explode.

Pivotally attached to the breech-bolt 33 and to the bevel gear-wheel 22 is a draw-bar 38, so arranged that as the beveled gear-wheel 22 is rotated the draw-bar will be moved forwardly and rearwardly, and thus cause the breech-bolt to be moved forwardly and rearwardly. When the bevel gear-wheel is in its locked position, the draw-bar and the breech-bolt attached to it will be at their forward limits of movement—that is to say, that the forward end of the breech-bolt will rest against the rear of the barrel of the gun and cover the rear of the bore 28 and the breech-bolt will be projecting through one of the curved slots 31 in the cartridge-chamber 30, and if there is a cartridge in the chamber the catch 34 will be over the rear of the cartridge and in engagement with the rim 35. Then as the wheel 22 is released from its locked position by operating the trigger 24 the breech-bolt will be drawn rearwardly to the position shown in Fig. 1 of the drawings and cause the cartridge to be extracted and drawn into one of the slots 31 in the cartridge-chamber, where the cartridge falls away from the catch into the slot 31, into which it is drawn, and then the cartridge-chamber will be rotated a quarter-turn in the manner to be hereinafter described, and so that the next slot will be in line with the breech of the gun and the breech-bolt will be swung forwardly into the position shown in Fig. 6 of the drawings, and thus cause the cartridge to be forced into its firing position in the breech.

Pivotally mounted above the bevel gear-wheel is the safety-lock 39, which is clearly shown in Fig. 13 of the drawings. This safety-lock has a pronged lower portion 40 designed to allow the rear portion of the firing-pin to pass between the prongs thereof. Said safety-lock is designed to rest against the rear of the breech-bolt and prevent it from rearward movement when the cartridge is being fired, and thus prevent the shock of the firing from injuring the working parts of the device. This safety-lock has an extension 41 at its rear end, which is designed to be engaged by the leaf-spring 42, said leaf-spring being so arranged as to hold the safety-lock 39 normally at its upper limit of pivotal movement, as shown clearly in Fig. 1 of the

drawings. There is a projection 43 on the periphery of the bevel gear-wheel 22, which is designed to normally engage the projection 41 when said wheel is maintained in a locked position by the trigger 24, and thus hold the forward end of the safety-lock in position against the breech-bolt, as shown in Fig. 6 of the drawings. As soon, however, as the wheel 22 is released from its locked position, the leaf-spring 42 forces the projection 41 downwardly and the forward end of the safety-lock upwardly and out of engagement with the breech-bolt 33, and thus allow said breech-bolt to be drawn rearwardly by the rotation of the wheel 22 in the manner above described.

Slidingly mounted in the upper portion of the gun and immediately behind the pivotal point of attachment of the safety-lock 39 is a slide 44, having forwardly-projecting member 45, designed to engage the projection 41 when this sliding member is at its forward limit of movement and force the projection to its extreme upper limit of movement, and thus force the forward end of the safety-lock to its extreme downward limit of movement, as shown by dotted lines in Fig. 6, and thus cover up the rear portion of the firing-pin, thus preventing the trigger from striking said pin even though it should be released from its locked position. Thus a safety device is provided which will prevent the firing of the gun when the sliding member 44 is at its upper limit of movement. When the sliding member 44 is at its lower limit of movement in the slot 46, the forward projection 45 does not engage the projection 41 nor in any way effect the operative parts of the device. I have provided a knob 47, which is to be grasped by the operator when he manipulates the slide 44.

Mounted on the extreme rear end of the shaft 48, upon which the cartridge-chamber 30 is mounted, is a ratchet-wheel 49, having a number of ratchets which are equal to the number of chambers or slots 31 in the cartridge-chamber. In engagement with said ratchet-wheel 49 is a pawl 50, having the driving-arm 51 pivotally attached to that end of it which is out of engagement with the ratchet-wheel 49. Firmly attached to the driving-arm 51 and extending rearwardly therefrom is the rotatably-mounted shaft 52, having the pawl 53, which is clearly shown in Fig. 10 of the drawings, the rear end of said pawl being constantly in engagement with the smooth portion of the bevel gear-wheel 22. Extending around the shaft and attached at one end to the frame of the gun and at its other end to the shaft 52 is a spring 54, designed to normally hold the shaft in position, and thus hold the pawl 53 firmly against the face of the beveled gear-wheel 22. I have provided an opening 55 in the surface of the

bevel gear-wheel into which the pawl is designed to extend when the wheel is in a certain position. One of the edges of said opening 55 is designed to engage the pawl 53 when it stands in the position shown in Fig. 10 of the drawings, and as the wheel 22 continues its rotation, as the pawl 53 enters the opening 55 the pawl will be forced out of said opening and this will cause the shaft 52 to be given a quarter-turn, which also drives the driving-arm 51 a quarter-turn, and the shaft 48 is driven a quarter-turn by means of the pawl 50, which is attached to the driving-arm 51. This causes the cartridge-chamber to be rotated a quarter-turn, and thus the cartridges in said cartridge-chamber are moved to the desired positions relative to the bore and magazine-chamber of the gun. The pawl 50 then maintains the cartridge-chamber in position throughout the entire revolution of the wheel 22 on account of the pawl being held in engagement with the surface of the wheel by the spring 54 as the wheel is rotated. The cartridge will be maintained in a locked position by this mechanism until the pawl 53 again enters the opening 55 and the operation is again repeated.

Pivotally mounted adjacent to the wheel 22 is the hammer 56, having the spring 57 in engagement with a pin 58 on its lower forward extremity, so arranged that except when the hammer is in a cocked position the upper portion of the hammer will be constantly forced forwardly toward the firing-pin, as is common in the ordinary rifle. I have provided a trigger 59, designed to engage the projection 60 on the trigger and normally hold the trigger in its cocked position when the trigger is in engagement with the notch 60. By releasing the trigger the springs 57 force the upper portion of the hammer forwardly, and thus causes the firing of the gun. The upper portion of the hammer is swung from its forward position to its cocked position by the same mechanism which draws the breech-bolt rearwardly, for the upper portion of the hammer is constantly in engagement with the rear portion of said breech-bolt except when the said hammer is in a cocked position or when the safety-lock 39 is so adjusted as to prevent the firing of the gun.

In practical operation and assuming that the operator has wound up the spring 20 and that the parts of the device are in the position shown in Fig. 6 of the drawings—that is to say, the gun is in a firing position, with the cartridge in the breech and the breech-bolt 33 extending through one of the slots or chambers 31 and resting against the rear portion of the cartridge and the safety-lock 39 in position, so that it engages the rear of the breech-bolt—the operator pulls the trigger 59, and this causes the hammer to be released. The spring 57 will force the hammer

forwardly and into engagement with the firing-pin 37, which causes the cartridge to explode. The operator then presses his finger upon the handle 25 and throws the lever 24
 5 out of the notch 23, which is in the bevel gear-wheel 22, and the spring which is released by the operating-lever 24 will cause the sleeve 19 to be rotated and with it the bevel gear-wheel 13, thus causing the rota-
 10 tion of the beveled gear-wheel 22. As the beveled gear-wheel 22 is rotated the breech-bolt 33 will draw the cartridge 36 rearwardly and into the chamber through which the breech-bolt was passed while the firing took
 15 place, and before this happens, however, the safety-lock will be drawn upwardly by means of the spring 42, as the projection 41 has been thrown out of engagement with the projection 43. Then the pawl 53 will next enter
 20 the opening 55 in the wheel 22, and as the wheel 22 continues its rotation the pawl 53 will be forced out of the opening 55, and the shaft 52, together with its connections, will rotate the chamber 30, thus forcing one of
 25 the chambers or spaces 31 to be behind the cartridge-magazine 29, and one of the cartridges will be forced into said chamber, and while this is being done the cartridge which has been moved behind and to one side of the
 30 bore 28 and will be moved in position at the rear of the breech 28 and will be forced forwardly into the breech by means of the breech-bolt, and the trigger will have been cocked also, and by the time the beveled
 35 gear-wheel 22 is revolved once and it is locked against further rotation by the trigger 24 the gun will be in readiness for further operation. If the operator desires to carry the gun from one place to another and if it is
 40 loaded, he adjusts the sliding member 44 to its upper limit of movement, and an absolute safety-lock is provided, and the cartridge will be prevented from being exploded by the hammer at any time while this safety-lock is
 45 at its upper limit of movement.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States therefor, is—

1. In a rifle, a shaft extending longitudinally in the stock of the rifle, a bevel gear-wheel mounted on one end of said shaft, a spring mounted around said shaft and attached at one end to it, means for winding up said spring, and a second bevel gear-wheel in mesh with the first-mentioned gear-wheel, and means for maintaining said gear-wheel against rotary movement, for the purposes stated. 50 55

2. In a rifle, a shaft extending longitudinally in the stock of the rifle, a bevel gear-wheel mounted on one end of said shaft, a spring mounted around said shaft and attached at one end to it, means for winding up said spring, and a second bevel gear-wheel in mesh with the first-mentioned gear-wheel, means for maintaining said gear-wheel against rotary movement, and a breech-bolt pivotally connected with the second bevel gear-wheel and designed to be operated by it, for the purposes stated. 60 65 70

3. In a frame, a spring-actuated wheel, a breech-bolt pivotally connected with said wheel, so arranged that as the wheel is rotated, the breech-bolt will be moved forwardly and rearwardly, a firing-pin extending longitudinally of said breech-bolt, a spring-actuated hammer, a trigger for maintaining the hammer in a cocked position, a safety-lock designed to rest against the rear end of said breech-bolt when at its forward limit of movement, a forked forward portion on said safety-lock and means for forcing the forward end of said safety-lock to a position where the forked forward portions extend around the firing-pin, for the purposes stated. 75 80 85

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Witnesses:

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 RALPH KELLER.