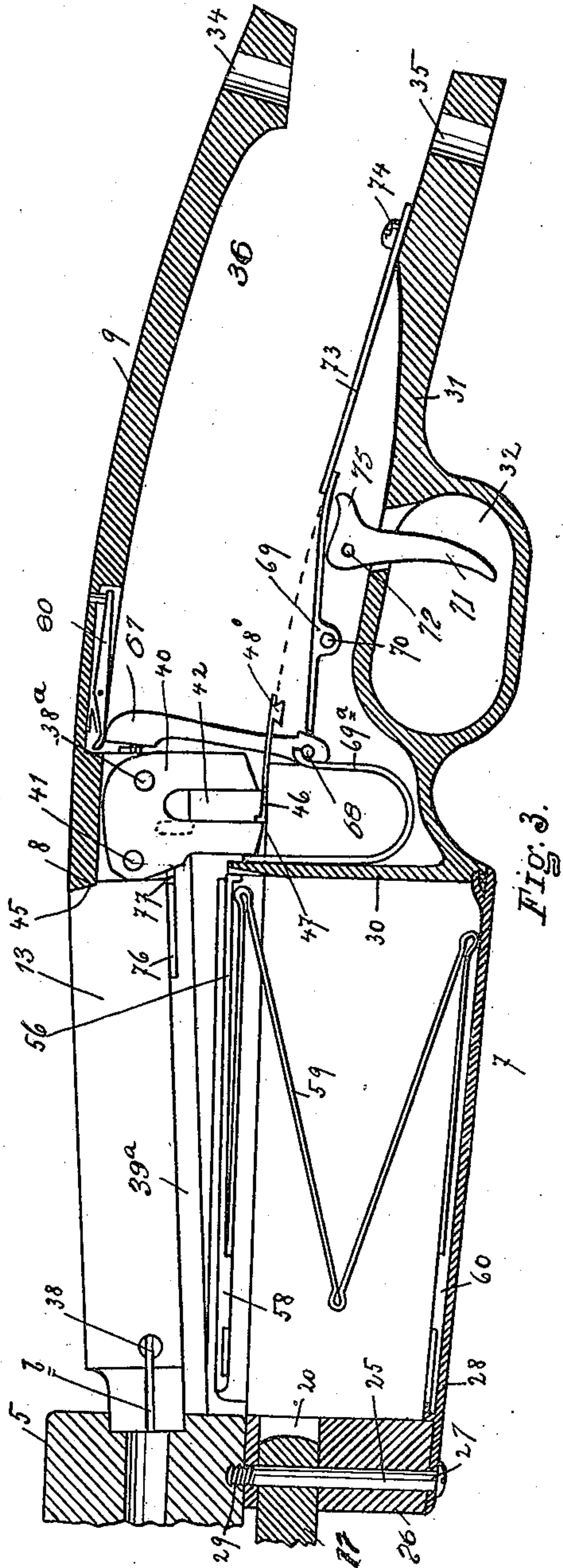
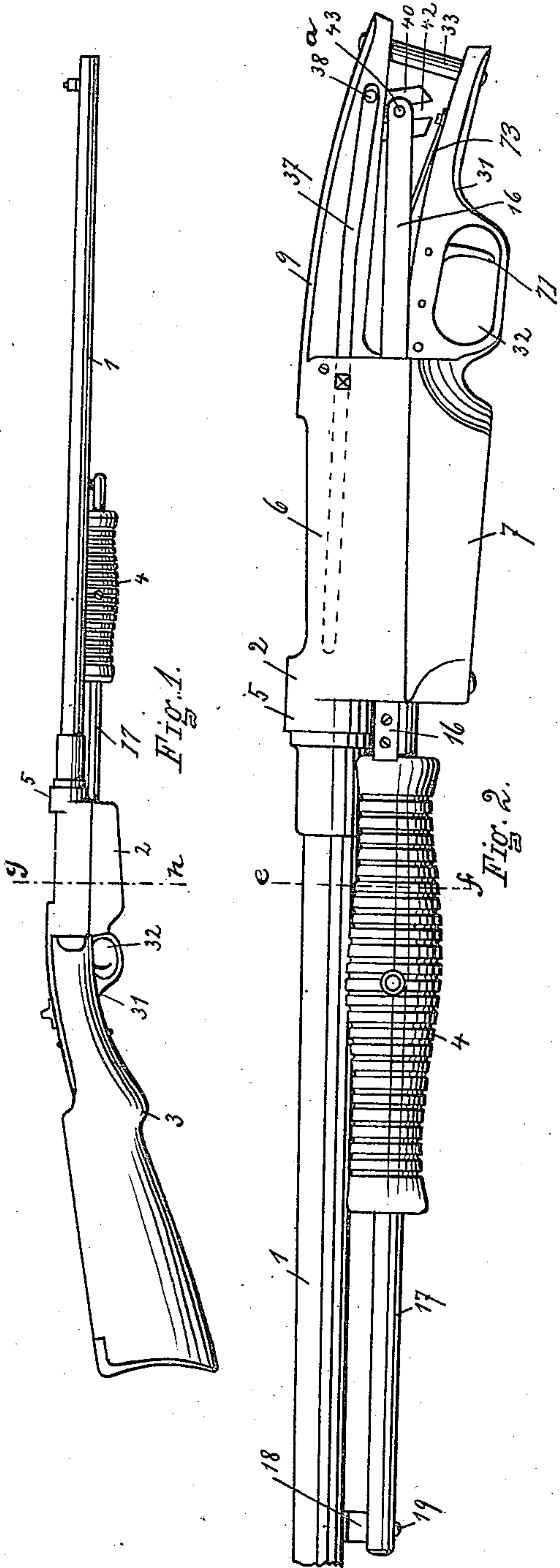


No. 833,872.

PATENTED OCT. 23, 1906.

J. M. CLOUGH.  
MAGAZINE FIREARM.  
APPLICATION FILED MAR. 6, 1901.

3 SHEETS—SHEET 1.



WITNESSES  
Rich. A. George  
Vernon W. Lee

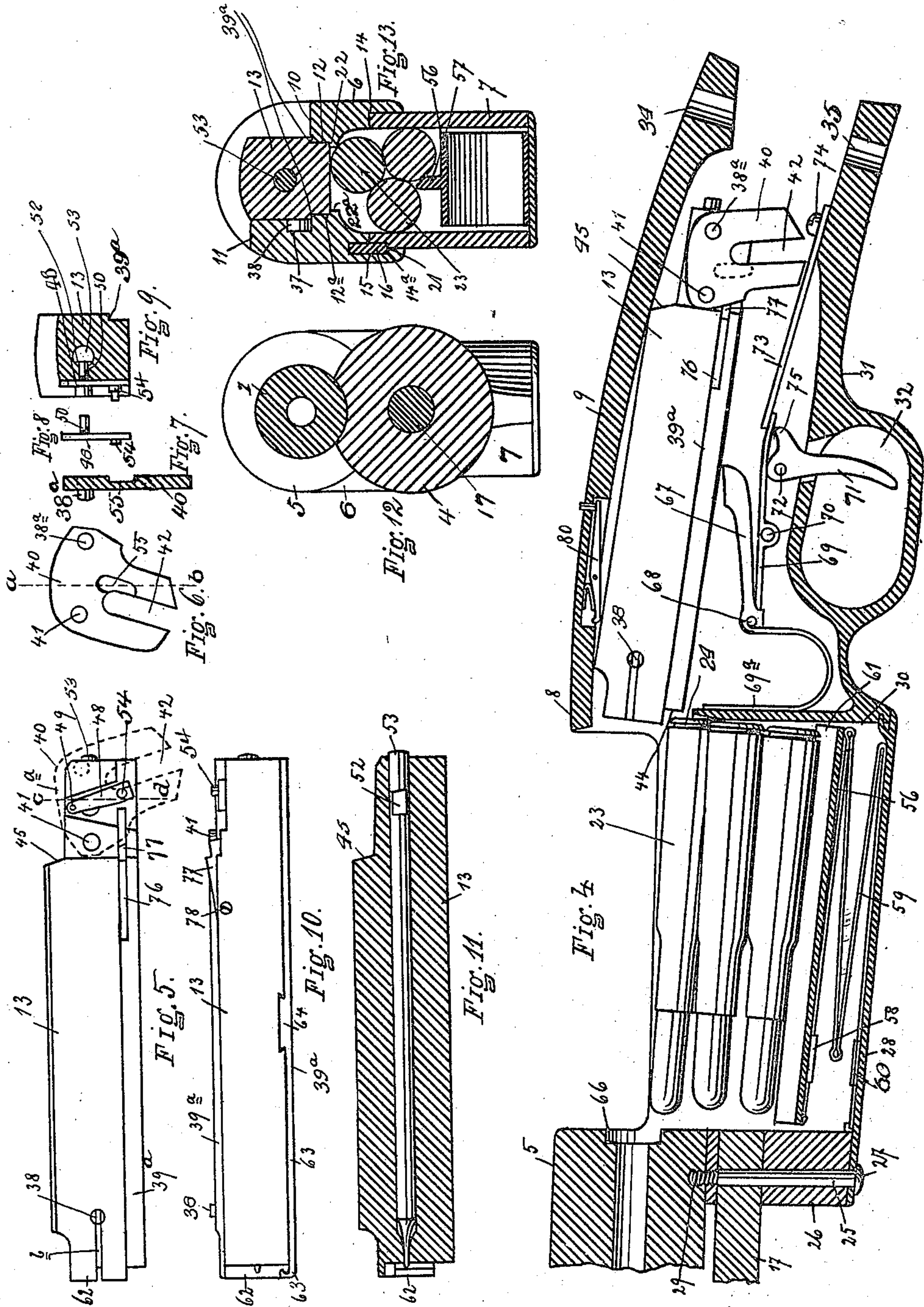
INVENTOR  
JEFFERSON M. CLOUGH.  
BY *Wiley Lane*  
ATTORNEYS.

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WITNESSES  
Rich. A. George  
Vernon W. Lee

INVENTOR  
JEFFERSON M. CLOUGH.  
BY *Wiley Jones*  
ATTORNEYS.

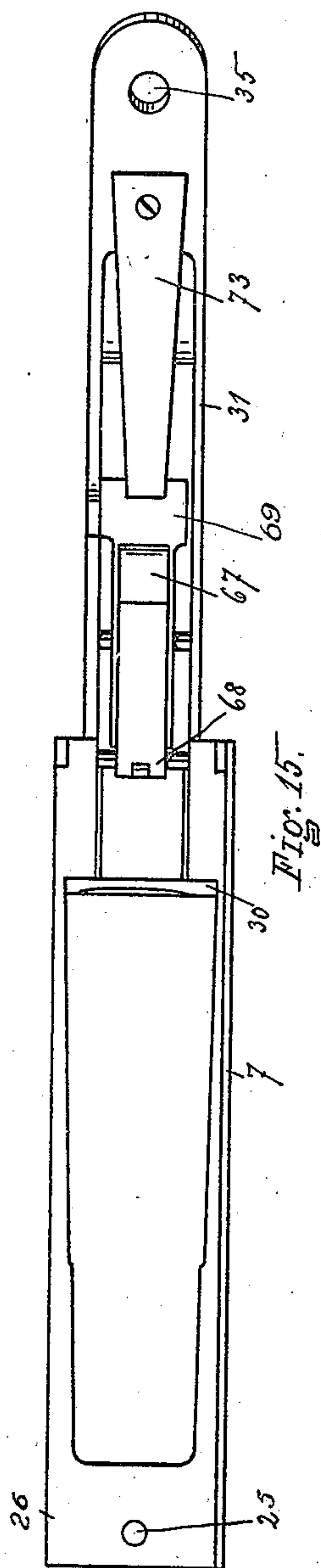
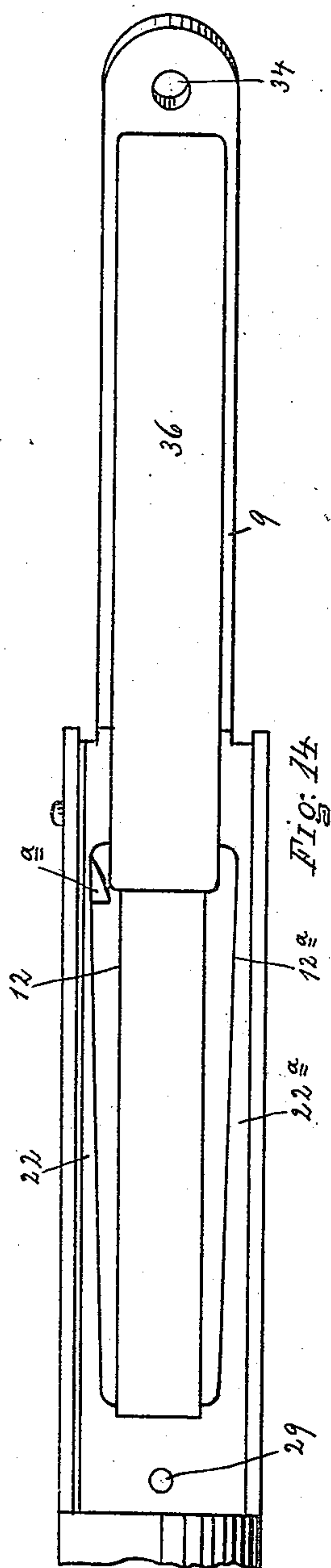


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3 SHEETS—SHEET 3.



WITNESSES  
Rich. A. George  
Vernon W. Lee

INVENTOR  
JEFFERSON M. CLOUGH.  
BY *Richard A. George*  
ATTORNEYS.

# UNITED STATES PATENT OFFICE.

JEFFERSON M. CLOUGH, OF BELCHERTOWN, MASSACHUSETTS.

## MAGAZINE-FIREARM.

No. 833,872.

Specification of Letters Patent.

Patented Oct. 23, 1906.

Application filed March 6, 1901. Serial No. 50,067.

*To all whom it may concern:*

Be it known that I, JEFFERSON M. CLOUGH, a citizen of the United States of America, residing at Belchertown, in the county of Hampshire and State of Massachusetts, have invented certain new and useful Improvements in Magazine-Firearms, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to an improvement in magazine-firearms, particularly to that class in which the strain incurred is taken in the direct line of fire.

The object and nature of my invention will be readily understood by those skilled in the art in the light of the following explanation of the construction shown in the accompanying drawings as an example for purposes of explanation of one arrangement, from among others, within the spirit and scope of my invention.

Referring to the accompanying drawings, Figure 1 is a side elevation of my improved firearm. Fig. 2 is a similar view from the opposite side, parts being broken away. Fig. 3 is an enlarged broken vertical longitudinal section of the gun, the action being closed. Fig. 4 is a similar view with the action open. Fig. 5 is a side elevation of the breech-bolt. Fig. 6 is a side elevation of the locking device for the breech-bolt. Fig. 7 is a vertical section of Fig. 6 on line *a b*. Fig. 8 is an edge elevation of the arm for operating the firing-pin. Fig. 9 is a transverse sectional view of the breech-bolt on the line *c d* of Fig. 5, the holding-arm being shown in elevation. Fig. 10 is a bottom-plan of the breech-bolt. Fig. 11 is a longitudinal central section of the breech-bolt, the firing-pin being shown in elevation. Fig. 12 is an enlarged section on line *e f* of Fig. 2. Fig. 13 is an enlarged section on line *g h* of Fig. 1. Fig. 14 is a bottom plan of the upper section of the magazine. Fig. 15 is a top plan of the lower section of the magazine.

The firearm illustrated in the accompanying drawings is particularly adapted to the use of rimless cartridges—that is, cartridges having a depression forward of their base without having a projecting rim.

Referring particularly to the drawings, 1 is a barrel, 2 a frame, 3 a rear stock, and 4 a reciprocating fore-arm.

The frame 2 comprises a receiver-section 6 and a magazine-section 7, a projection 5 being formed at the forward end of said re-

ceiver-section, into which projection the barrel 1 is tapped, as is shown. The receiver 6 is cut away at the upper right-hand portion, as at 10, to provide for the ejection of the shells, while the left-hand portion 11 of the receiver terminates about on a line with the top of the breech-bolt, to be hereinafter described. The lower edges of the receiver are rabbeted, as at 14 and 14<sup>a</sup>, to receive the upper edges of the magazine-section 7, and adjacent said rabbet 14<sup>a</sup> I form a longitudinal slotway 15, in which is slidably mounted a connecting-rod 16. The forward end of this rod is suitably secured to the fore-arm 4, which fore-arm is slidably mounted on a rod 17, supported at its front end by a screw 19 and spaced from the barrel by a block 18, the rear end of the rod 17 setting in an opening 20, formed in the forward wall of the magazine-section 7.

The interior form and shape of the magazine and receiver sections is such as to accommodate five cartridges of the required size, though the width of the sections is such as to compel said cartridges to lie in staggered relation—that is, no two of the cartridges in horizontal alinement. The mouth of the receiver-section just below the operative plane of the breech-bolt is reduced in size to form shoulders 22 22<sup>a</sup>, which shoulders are preferably formed by curving the inner surface of the walls of the receiver-section inward at this point, as clearly shown in Fig. 13. This construction serves to arrest the upward movement of the cartridges at a point where a butt 24 of the cartridge 23 stands in an elevated position, so as to be engaged at the lower forward end of the breech-bolt, as hereinafter described.

The forward wall of the magazine is formed with an opening 25 to receive a bolt 27, adapted to pass through the magazine-wall 26 and engage the threaded opening 29 in the edge of the front wall of the receiver, the bolt 27 also passing through and securing the rear end of the rod 17.

The receiver-section is provided with a rearwardly-extending tang 9, while the magazine-section is provided with a rearwardly-extending tang 31. The tang 31 is provided with a trigger-guard 32 and projects rearwardly from the rear wall 30 of the magazine.

The upper and lower tangs are designed to receive the gun-stock 3, the latter being secured by a screw 33, which passes through



an opening 34 in the upper tang 9 through the gun-stock 3 and through the opening 35 in the lower tang 31.

13 represents the breech-bolt, preferably rectangular in section and provided with shoulders 39<sup>a</sup> on the lower side edges, which shoulders are arranged to rest upon projecting edges 12 and 12<sup>a</sup>, formed interiorly in the wall of the receiver, as illustrated in Fig. 13. The breech-bolt operates in a way or opening 36, formed between the upper tang 9 and lower tang 31, and is guided in its movement by a pin 38, projecting laterally from the forward end of the breech-bolt and operating in a grooved way 37, formed in the wall of the receiver, which groove extends downward near its rear end to guide the forward end of the breech-bolt, through the medium of the means hereinafter described, in opening the action. The forward portion of the groove 37 is shown by dotted lines in Fig. 2. The breech-bolt is provided on its rear portion with an inclined shoulder 45, while the upper tang in rear of the opening 10 in the receiver is formed with an inclined shoulder 8, with which latter shoulder the shoulder 45 on the breech-bolt is arranged to engage to lock the action closed.

The forward face of the breech-bolt is provided with a projecting flange 62, of sufficient width to admit the head of the cartridge. The extractor-spring 63, dovetailed at 64 into the breech-bolt, is so arranged that its hook end lies near the recess formed by the flange 62, whereby to engage the depression in the cartridge-butt.

For feeding the cartridges from the magazine into the receiver I provide a movable carrier 56, having a longitudinal ridge 57. The under side of this carrier is provided with an internal pair of lugs or flanges 58, arranged to receive and snugly hold one leaf of the operating-spring 59, the bottom or lower leaf of which is removably secured to the magazine-bottom 28 by the medium of lugs or inturned flanges 60. By this construction the cartridge is fed upward toward the receiver, the longitudinal ridge 57 of the carrier operating to hold the lower cartridge in manner to support the remaining cartridges one slightly above the other in staggered order, whereby the top cartridge is in position to be forced into the barrel by movement of the breech-bolt in closing the action. In opening the action the breech-bolt is retracted such a distance that the recess formed by flange 62 will slightly overlie the butt of the cartridge in the magazine, so that in feeding said cartridges the upper cartridge will be fed directly into the recess in the breech-bolt.

The rear end 61 of the longitudinal ridge 57 will engage the forward end of the breech-bolt when the magazine has been entirely emptied, whereby to prevent closing of the action after the magazine has been emptied.

For establishing operative connection between the fore-arm slide and the breech-bolt and for swinging the rear end of the breech-bolt to and from closed position and for holding or locking the same in closed position I provide what I term a "locking device" 40, comprising a plate-like member (fully illustrated in Fig. 6) and pivoted to the breech-bolt at 41. The rear portion of the breech-bolt is cut away at one side to receive the locking device, the construction being such that the locking device is flush with the side face of the breech-bolt. The lower portion of the locking device is bifurcated to present the opening 42 for the reception of the stud 43, projecting laterally from the rear end of the rod 16, whereby when the fore-arm is reciprocated the locking device will assume operative and inoperative positions. A screw 38<sup>a</sup>, projecting laterally from the locking device, is adapted to be guided in the groove-way 37 in the receiver-wall, whereby the rearward movement of the fore-arm from its forward position will depress the rear end of the breech-bolt from elevated closed position and disengage the shoulders 45 and 8, as will be evident. The reverse movement of the fore-arm will force the shoulders into engagement. The upward movement of the rear end of the breech-bolt under the influence of the parts described is produced by the screw 38<sup>a</sup> acting as a sliding guide for the locking device, which latter is pivoted at 41 to the breech-bolt. By moving the lower or bifurcated end of the locking device forward or backward under influence of the fore-arm the rear end of the breech-bolt is elevated or depressed, as plainly apparent from the drawings. To prevent accidental movement of the locking device when the action is closed, I provide a spring member 46, having an upwardly-projecting lip 47 at its upper end and secured at 48 at its rear end in the lower tang 31. The forward member of the bifurcated lower portion of the locking device rides over the spring 46 and in front of the lip 47 in closing the action, positively forcing the shoulders 8 and 45 into engagement to insure a completely-closed action prior to the discharge of the gun. When the fore-arm is drawn back to withdraw the breech-bolt from its forward locked position, the locking device is rocked rearwardly and upwardly on its fulcrum 38<sup>a</sup> and its lower end depresses and slips rearwardly past the shoulder or abutment 47 on the spring 46.

The firing-pin 53 is arranged for longitudinal movement centrally of the breech-bolt and is normally held back from the firing position by the arm 48, pivoted at 49 to the breech-bolt and provided with a laterally-projecting stud 50 to engage the depression 52 in the side of the firing-pin. On the face opposite the stud 50 the arm is provided with a stud 54, arranged to engage a recess 55 in



the locking device, whereby to withdraw the firing-pin from operative position in swinging the locking device to open the action.

For discharging the firearm I provide the hammer 67, pivoted at 68 and operated by a spring 69<sup>a</sup>. The sear 69, pivoted at 70, is arranged to be operated by the cam end 75 of the trigger 71, pivotally mounted at 72, the sear and trigger being normally held in inoperative position by a spring 73, secured to tang 31 by screw 74. Pressure on the trigger elevates the rear end of the sear and releases the hammer under the influence of the spring 69<sup>a</sup>, which then strikes the firing-pin.

It will be understood that the hammer directly underlies the breech-bolt, whereby the gun is cocked by opening the action, and that the firing-pin is not exposed to the contact of the hammer until the gun-action is completely closed. For maintaining a fixed relation of the locking device or swinging bolt elevating and depressing member 40 with respect to said breech-bolt during the forward sliding movement of the breech-bolt and until said bolt reaches the position from which its rear end is swung upwardly I provide a longitudinal recess 76 in the side of the breech-bolt, in which recess is pivotally mounted at 78 a spring-catch 77, having in its rear end an offset to engage the forward edge of the locking device and lock or hold said device against forward swing independently of the breech-bolt while the breech-bolt is being moved forward, as clearly shown in Fig. 4. As the breech-bolt is moved forward in closing the action the catch 77 contacts with the way in which the breech-bolt travels, forcing the catch inward and permitting the locking device to assume a vertical position. (Illustrated in Fig. 3.) During the reciprocation of the breech-bolt the stud or screw 38<sup>a</sup> of the member 40 slides in the groove or way 37 and determines the vertical position of the rear end of the breech-bolt through the medium of the pivot connection 41 between the breech-bolt and the swingable member 40. The stud 38<sup>a</sup> is eccentrically arranged with respect to the pivot 41—that is, the pivot is arranged in advance of the stud. When the breech-bolt has reached its limit of forward movement with its front end seated in the barrel, the side wall of the receiver has pressed the catch or lock 77 inwardly from engagement with member 40. While the parts are in this position, continued forward movement of the fore-arm swings the lower end of member 40 forwardly on stud 38<sup>a</sup> as a fulcrum, thereby elevating the rear end of the breech-bolt through the medium of pivot 41, the breech-bolt swinging on its stud 38 as a pivot. During this operation the member 40 acts as a lever fulcrumed at 38<sup>a</sup>, to which power is applied at 43 and to which work is applied at 41. A powerful le-

ver action is thus attained through the medium of member 40 in swinging the breech-bolt up to closed position and in drawing the same down on the initial breech-opening movement.

An indicator 80 is provided on the lower side of tang 9 to indicate the position of the hammer—that is, the cocked or uncocked condition of the gun.

The operation of the structure will be readily apparent from the above description, taken in connection with the drawings.

*a* is any suitable ejector arranged in the wall of the receiver and adapted to spring into slot *b* to engage the head of the cartridge being withdrawn.

Having thus described my invention, what I claim is—

1. In combination, in a firearm, a frame comprising a receiver and having a longitudinal grooved way within the frame and extended forwardly along the receiver, a breech-bolt movable within the frame and receiver and having guiding means movable in said way, a locking device pivotally connected to the breech-bolt and provided with a laterally-projecting stud arranged eccentrically with respect to the pivotal connection between said device and bolt, and movable in said way in which said bolt-guiding means is confined, and means applied to said device for reciprocating said breech-bolt and for swinging said device on said stud as a fulcrum to raise and lower the breech-bolt.

2. In a firearm, a frame formed with a breech-opening and having a recoil-shoulder at the rear of the opening, a breech-bolt having a recoil-shoulder at its rear end, a locking-lever device pivotally connected with the breech-bolt, a groove formed in the frame, and studs projecting from the breech-bolt and the locking device and both working in said one groove, said lever-device stud being eccentrically arranged with respect to said pivotal connection between the bolt and said device, and means for reciprocating the breech-bolt.

3. In a firearm, a frame having a longitudinal groove, a recoil-shoulder formed in the frame, a breech-bolt having a recoil-shoulder and provided with a stud to work in said groove, a swingable locking-lever device pivoted to the breech-bolt and provided with a stud in rear of said pivot and arranged to work in said groove, a sliding fore-arm, and a rod connecting said fore-arm and locking device to operate the breech-bolt and swing said device and the bolt to engage and disengage said recoil-shoulders.

4. In a firearm, a frame, a reciprocating breech-bolt mounted to swing at its rear end, recoil-shoulders on the bolt and frame to be engaged and disengaged by said swinging movement of the breech-bolt, a groove formed in the frame, a swingable locking de-



vice pivoted to the rear of the breech-bolt, a fulcrum-stud projecting from said locking device to one side of the axis of said pivotal connection and working in said groove, means to detachably lock said device against swinging, a sliding fore-arm, and a rod connecting said fore-arm and locking device for operating the latter to swing and slide the breech-bolt.

5. In a firearm, a frame having an opening in its upper portion forming a recoil-shoulder at its rear, a sliding breech-bolt, a locking device pivoted to the rear end of the breech-bolt, a sliding fore-arm, and a rod connected to the fore-arm, and to the locking device for operating the latter for locking and unlocking the bolt and reciprocating the same, said rod having a sliding connection with the locking device.

6. In a firearm, a breech-bolt having a longitudinal opening, a firing-pin movable within said opening, an arm pivoted on the breech-bolt having a stud projecting therefrom and engaging the firing-pin, a locking device pivoted in a recess formed in the breech-bolt, said locking device being provided with a recess to receive the stud on the arm, means for operating the locking device, and a spring-actuated catch pivoted to the breech-bolt and operative to hold the locking device in position to maintain an inoperative situation of the firing-pin.

7. In a firearm, a frame formed with a recoil-shoulder, a reciprocating breech-bolt having a recoil-shoulder, a locking device pivoted to the rear of the breech-bolt, said device being provided with a stud for supporting and guiding the breech-bolt and formed with a slot, a sliding fore-arm, a rod connected to the fore-arm and having a stud working in the slot of the locking device, and means for yieldingly holding the locking device, whereby operation of said fore-arm will reciprocate the bolt and carry the same into the frame.

8. In a firearm, a frame having rearward-extending tangs, a reciprocating breech-bolt having a swing motion at its rear end for locking and unlocking the same and mounted to retire between the tangs, an angular locking device pivoted at one angle to the bolt and carrying a projecting stud at another angle and formed with a slot, a groove formed in the frame in which said stud works, a sliding fore-arm, a rod connected to the fore-arm and having a stud to engage the slot in the locking device, and means for holding the locking device in vertical position.

9. In a firearm, a frame formed with an opening and comprising an upper tang and a lower tang, the frame being provided with a recoil-shoulder, a breech-bolt provided with a pivoted spring-actuated projection at the rear of the bolt, means for elevating and depressing the rear of the breech-bolt into and

out of locking engagement with said recoil-shoulder a groove formed in the upper tang for guiding the breech-bolt, and a sliding fore-arm and connecting mechanism.

10. In combination, in a firearm, a frame comprising a receiver and formed with a slideway extending rearwardly therefrom, a breech-bolt movable in the frame and receiver, a swinging locking-lever pivoted to said bolt and depending therefrom, breech-bolt-operating means applied to said lever, said lever having fulcrum means arranged eccentrically with respect to the pivotal connection between the bolt and lever and confined and slidable in said groove, and means to detachably hold said lever against swinging.

11. In a firearm, in combination, a reciprocating and vertically-movable breech-bolt, a frame having a longitudinal slideway, a lever member having a fulcrum working in said slideway, a pivotal operative connection between said member and the rear portion of said bolt for raising and lowering the rear end of the bolt as said member rocks on said fulcrum, means for holding said member against rocking when in certain positions and operating mechanism for rocking said member on said fulcrum to raise or lower the rear end of said breech-bolt, substantially as described.

12. In a firearm, in combination, a frame, a reciprocating and vertically-swingable breech-bolt, a lever member moving with the bolt, a pivotal bolt-swinging connection between said member and bolt having a fixed axis with respect to said bolt and member, said member having a fulcrum working within the frame and on which said member swings to raise and lower the rear end of the bolt, detachable means for holding said member against swinging and bolt-operating mechanism applied to said member for swinging the same and for reciprocating the bolt, substantially as described.

13. In a firearm, in combination, a frame having a longitudinal slideway, a reciprocating breech-bolt, a lever member pivotally joined thereto on a fixed axis, and provided with a fulcrum working in said slideway and determining the vertical position of the rear end of the bolt, means holding said member against swinging on said fulcrum during a portion of the movement of the bolt, and bolt-operating mechanism applied to said member for reciprocating the bolt and for swinging said member on said fulcrum to raise and lower the rear of the bolt, substantially as described.

14. In a firearm, in combination, a frame having a longitudinal slideway, a reciprocating breech-bolt, a lever member carried by said bolt and provided with a fulcrum working in said slideway, the lower portion of said member being vertically slotted, and a



fore-arm provided with a slide having a stud confined in said slot, substantially as described.

15 In a firearm, in combination, a frame, 5 having a longitudinal slideway, a reciprocating breech-bolt, a lever member carried thereby and movable therewith and provided with a fulcrum working in said slideway, a movable catch carried by said bolt to engage 10 and prevent forward swing of said member during the forward stroke of said bolt, and bolt-reciprocating and member-swinging mechanism applied to said member.

16. In a firearm, in combination, a frame, 15 a reciprocating breech-bolt, a lever member coupled to and carried thereby and provided with a fulcrum working in the frame, means to prevent independent forward swing of said member during the forward movement 20 of said bolt and to permit forward swing of said member to elevate the rear end of the

bolt when said bolt reaches its limit of forward movement, and bolt-reciprocating and lever-swinging means applied to said member, substantially as described. 25

17. In a firearm, in combination, a frame, a reciprocating breech-bolt, a longitudinal firing-pin therein, a lever member pivotally joined to said bolt and provided with a stud 30 working in the frame, an arm pivoted to the breech-bolt and controlled and actuated by said member and controlling the position of the firing-pin when the bolt is unlocked, and bolt-reciprocating mechanism applied to said member, substantially as described. 35

In testimony whereof I affix my signature in presence of two witnesses.

JEFFERSON M. CLOUGH.

Witnesses:

WM. E. BRIDGMAN,  
A. H. SHAW.