

975,071.

Patented Nov. 8, 1910.

2 SHEETS—SHEET 1.

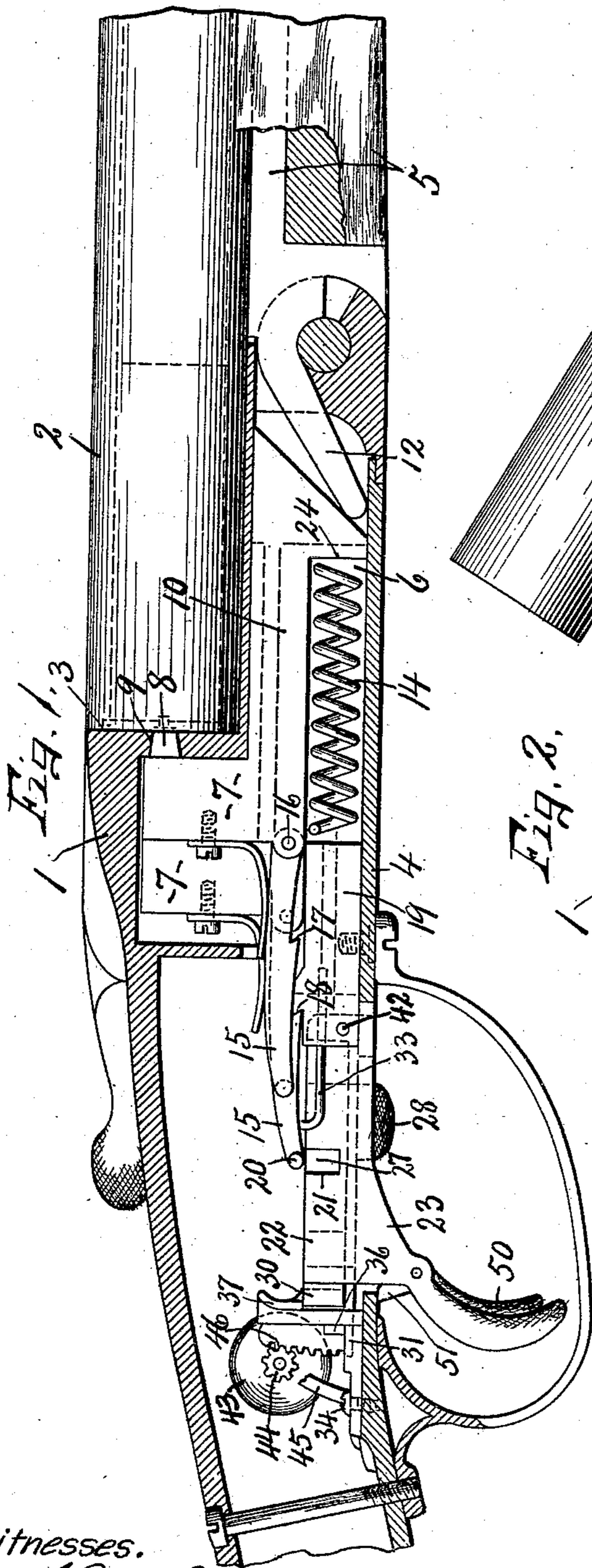


Fig. 1.

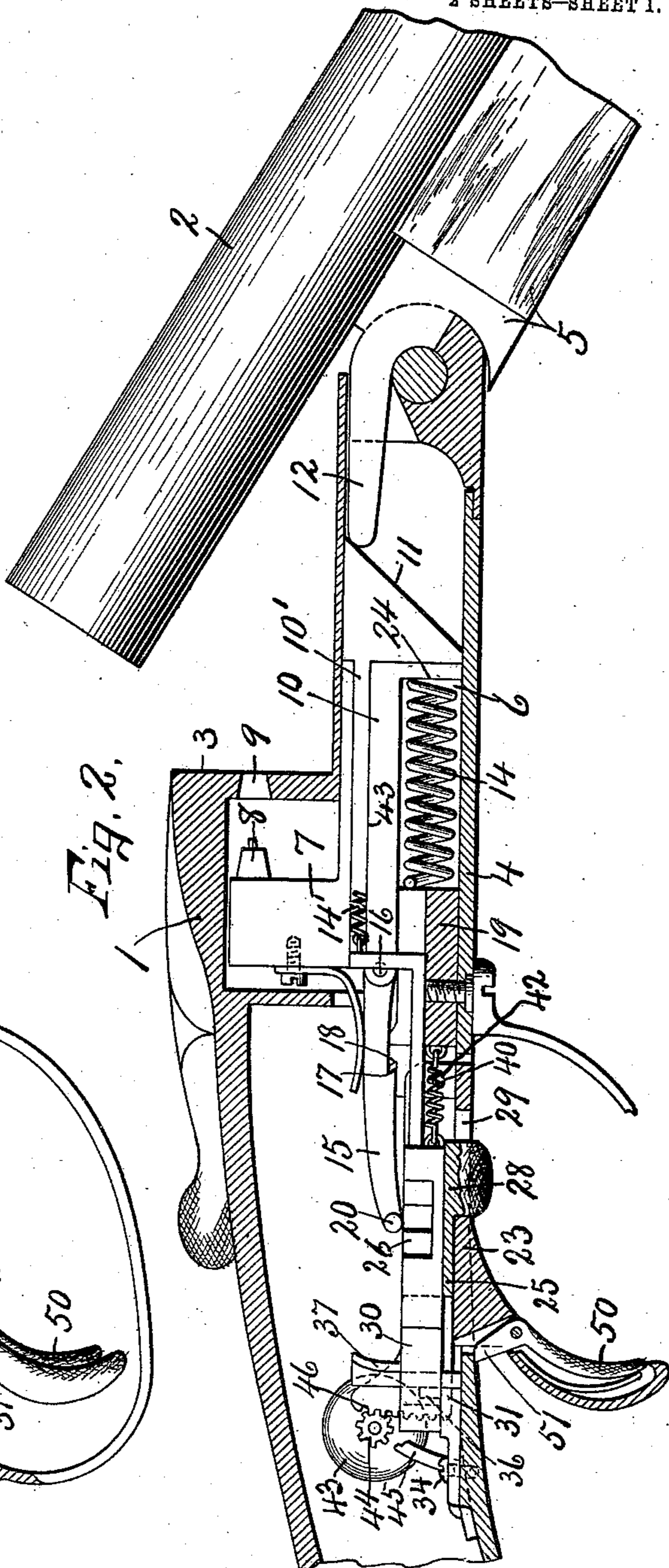


Fig. 2.

Witnesses.

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2 SHEETS—SHEET 2.

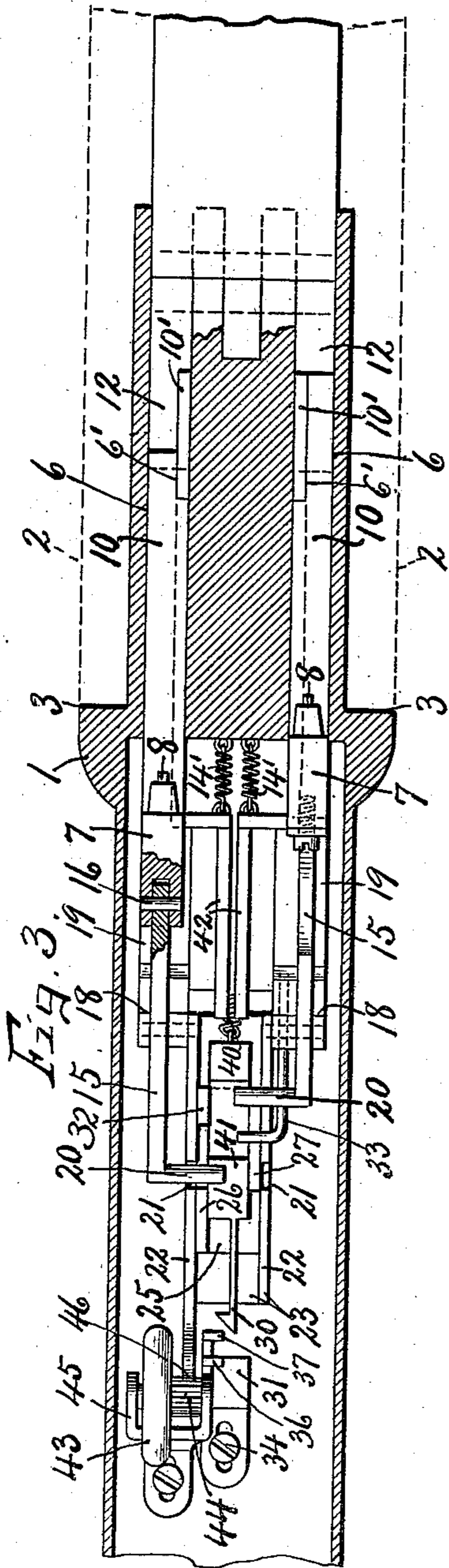


Fig. 5.

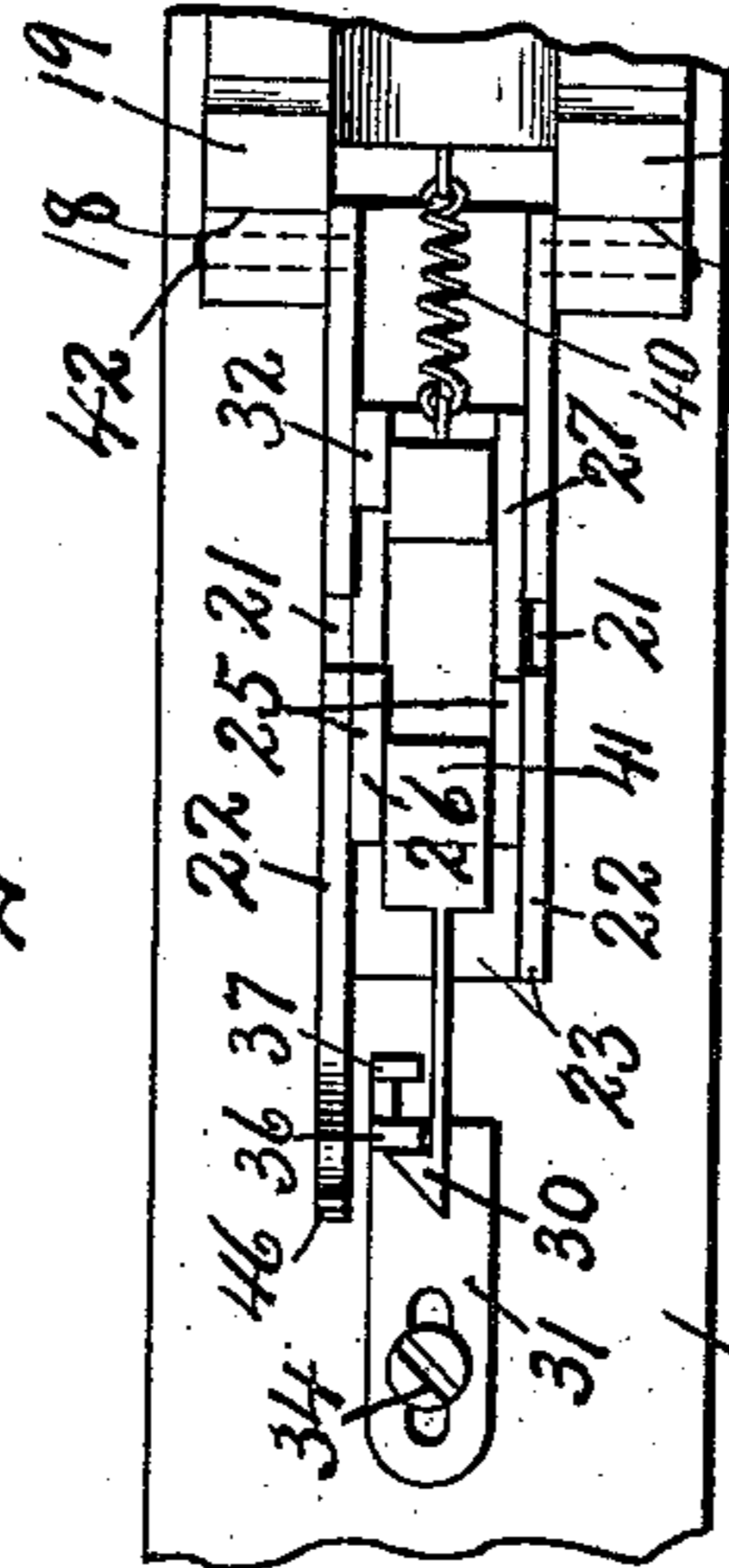


Fig. 6.

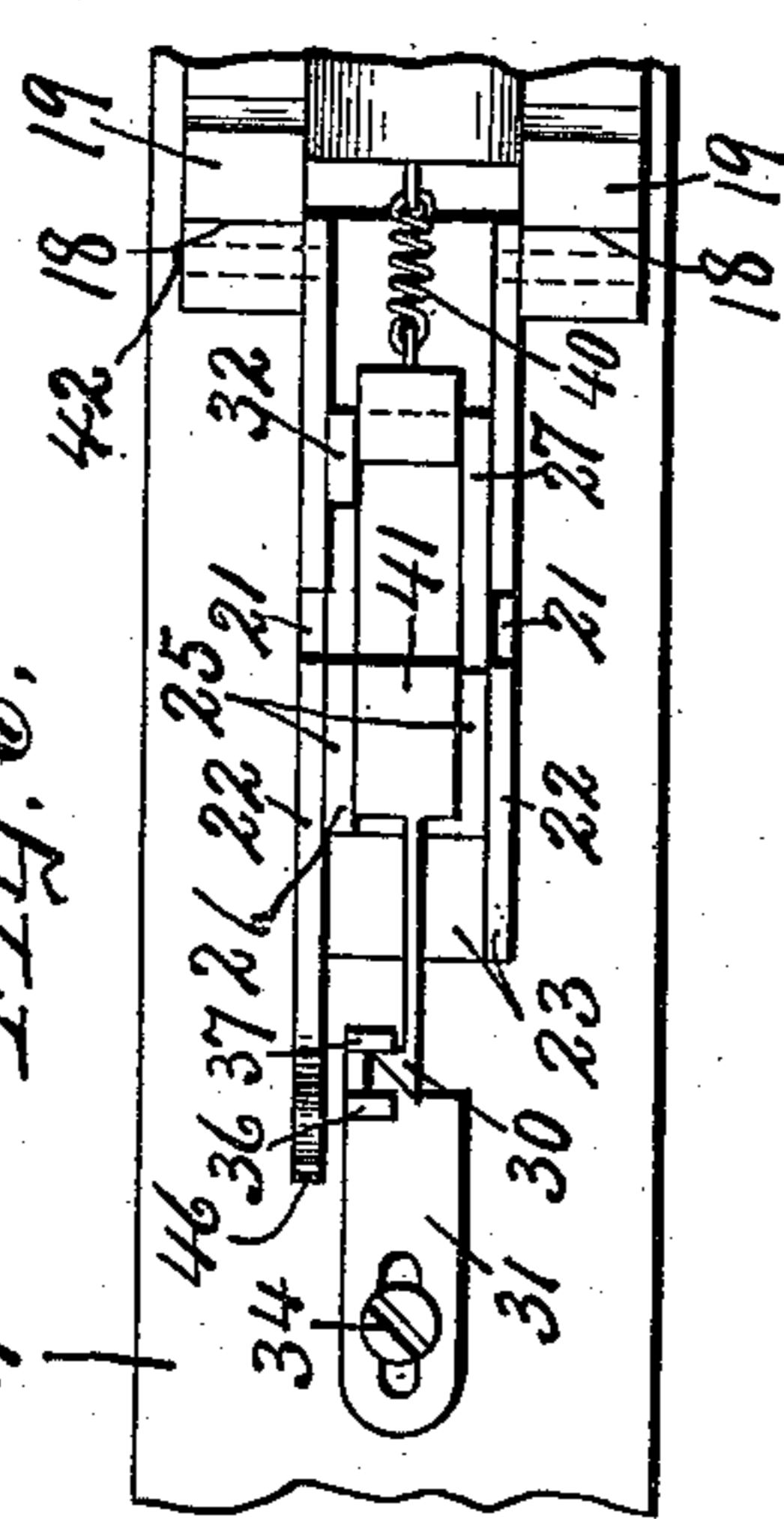
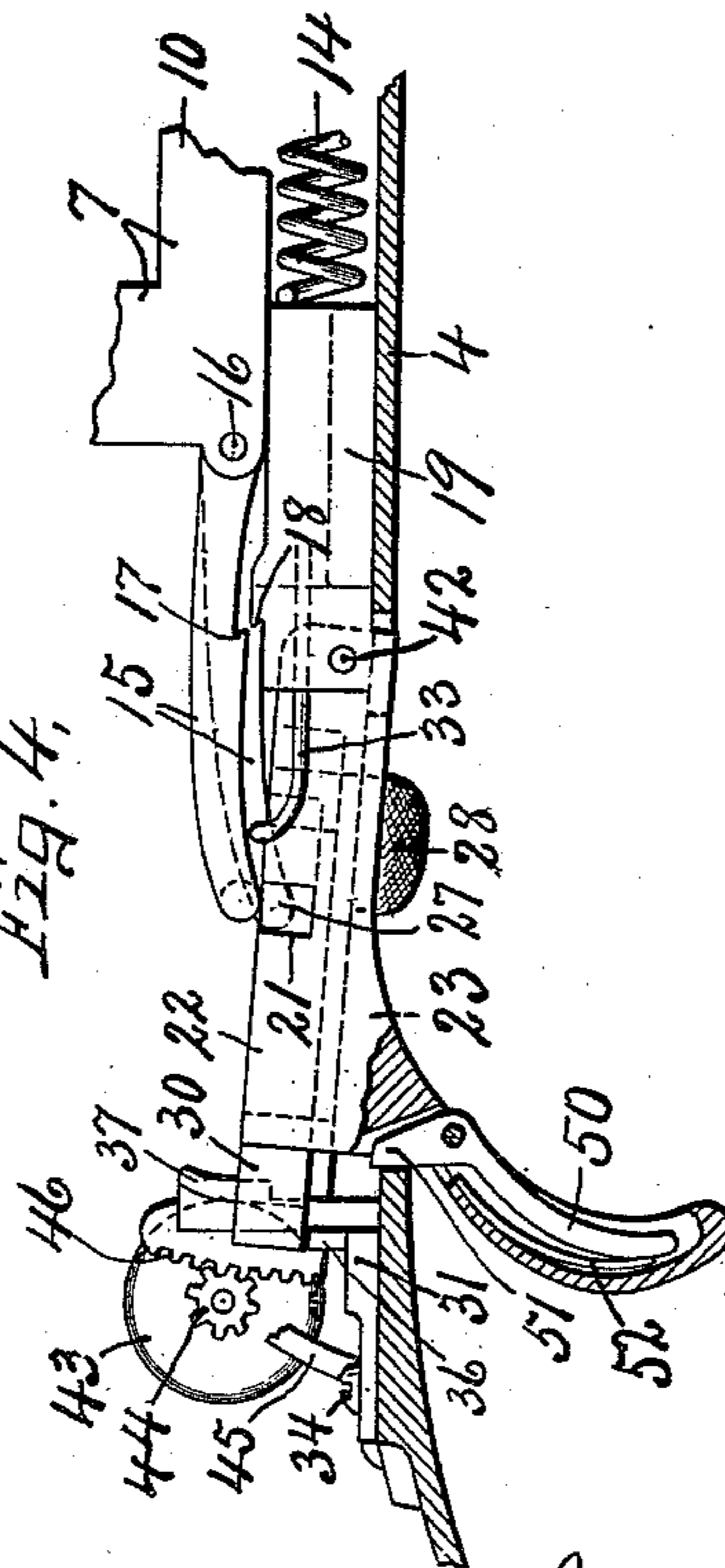


Fig. 4.



Witnesses.

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# UNITED STATES PATENT OFFICE.

JOHN A. RICKETTS, OF ITHACA, NEW YORK.

BREECH-LOADING GUN.

975,071.

Specification of Letters Patent.

Patented Nov. 8, 1910.

Application filed February 23, 1909. Serial No. 479,563.

*To all whom it may concern:*

Be it known that I, JOHN A. RICKETTS, of Ithaca, in the county of Tompkins, in the State of New York, have invented new and useful Improvements in Breech-Loading Guns, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to certain improvements in breech loading guns of the single trigger double barrel type, and refers more particularly to the firing mechanism comprising the hammer cocking and trigger actions, although certain parts of the cocking action are equally applicable to single barrel guns.

One of my objects is to dispense with the usual cocking hook, which is generally mounted upon the lug of the gun barrels, and at the same time to obviate the use of all pins and screws which usually appear on the side of gun locks of this class of guns. In other words, I have sought to simplify the hammer action and its cocking mechanism by providing a straight drive slide hammer which is cocked by direct contact with the rear end of the fore-end piece, as the gun is opened, and at the same time to provide a simple means for preventing the tensioning of each spring-pressed sear upon the trigger while the other sear is being tripped, thereby equalizing the pull upon the trigger in firing the barrels successively.

Another object is to provide a simple device for preventing "double firing" due to what is commonly known as the "involuntary pull" after firing the first barrel, and at the same time to avoid the unreliability of weights, dash pots and similar mechanisms which are always affected by varying loads of the gun or by the recoil or position in which the gun is held.

In the drawings—Figure 1 is an elevation partly in section of a portion of a breech loading double barrel shot gun, embodying the various features of my invention, the barrels being closed and one hammer in its firing position. Fig. 3 is a top plan partly in section of the same portions of the gun seen in Fig. 1. Fig. 2 is an elevation, partly in section, similar to that shown in Fig. 1 except that the gun is open at the breech and the hammers are shown in their cocked position. Fig. 4 is a side elevation partly in

section of the detached trigger as raised showing the gyral disk and hammer sears, one of the latter being just tripped. Figs. 5 and 6 are top plan views of the latch mechanism for controlling the firing of the second hammer.

This gun comprises a main frame —1— and barrels —2— separable at the breech line —3—, the frame —1— being provided with a trigger plate —4—, while the barrels are provided with a fore-end piece —5— secured to the under side thereof in the usual manner, and having its rear end fitted and riding against the curved front end face of the frame —1—. The frame —1— is provided with lengthwise channels or recesses —6—, opening from the under side thereof and extending rearwardly and upwardly at the rear of the breech face —3— for receiving and guiding a pair of sliding hammers —7—, having suitable firing pins —8— which ride in apertures —9— extending from the breech face —3— to the chambers —6—.

The main body of each hammer is disposed at the rear of the breach face, but is provided with a forwardly projecting arm —10— extending some distance beyond the breech face and under the adjacent portion of the barrels —2— and is provided at its forward end with an inclined bearing face —11— which is adapted to be engaged by the rearwardly extending arm —12— on the adjacent end of the fore-end piece —5—, so that when the barrel is rocked upon the frame —1— the rear end of an extension —12— of the fore-end piece will ride against the inclined face —11— and thereby impel the hammer —7— rearwardly against the action of a coil spring —14— for the purpose of forcing the hammer to its cocked position, as will be presently described. Each hammer —7— is provided with an independently movable sear —15— pivoted thereto at —16— and extending some distance rearwardly therefrom, the lower edges of said sears being provided with shoulders —17— adapted to interlock with corresponding shoulders —18— on a fixed block —19— which is secured to the trigger plate —4—, as best seen in Figs. 1 and 2, to hold the hammers in their cocked positions. The rear ends of the sears —15— are provided with lateral offsets or pins —20— pro-

jecting toward each other and adapted to register with suitable recesses or open-sided slots —21— in upwardly projecting ribs —22— of a trigger —23—. The hammer 5 actuating springs —14— are interposed between the front end of the block —19— and suitable shoulders —24— on the front ends of the hammer arms —10—, said shoulders —24— being formed by cutting away the 10 lower portions of the hammers.

The rear ends of the hammers are guided between the upper face of the block —19— and upper part of the frame —1— at the rear of the breech line —3—, while the 15 front ends of the hammers or their extensions —10— are guided between the upper face of the trigger plate —4— and superposed portion of the frame —1— directly under the rear ends of the barrels, thereby allowing 20 the hammers to move back and forth in a straight line, and keeping the firing pins in registration with their apertures.

During the breaking of the gun at the breech line, the hammers —7— are forced 25 rearwardly against the action of the springs —14— by the engagement of the fore-end piece extensions —12— with the inclined faces —11— thereby causing the sears —15— to ride along the upper face of the 30 detent block —19— until the sear shoulders —17— automatically drop into interlocking engagement with the shoulders —18—, thereby holding the hammers in their cocked positions with the lateral extensions —20— 35 lying directly over and in registration with their respective slots —21— in the trigger block —23—, it being understood that the remaining portions of the sears are located just outside of the path of movement of the 40 trigger block, so that unless some sear tripping device is interposed across the slots —21— the trigger —23— may be pulled or elevated without effecting the tripping of either sear because the lateral projections 45 —20— will simply pass into their respective slots —21— which are of sufficient vertical depth to allow the trigger to be moved to its upward limit without liability of engagement of the bottoms of the slots —21— with 50 the projections —20—.

The independent tripping of the sears is controlled by a shift block —25— which is slidably mounted upon the trigger block —23— between the flanges —22— and is 55 provided with upwardly projecting parallel flanges —26— and —27— and a pendent lug —28—, the flanges —26— and —27— being movable into and out of registration with their respective slots —21— in the 60 trigger block —23—, while the lug —28— projects downwardly through an elongated slot —29— in said trigger block and is provided with suitable finger pieces, whereby the shift block may be moved by hand, the 65 slot —29— being of sufficient length to per-

mit of such movement. The object of this shift block is to enable the operator to elect at will which barrel shall be fired first, and for this purpose the sear tripping members or flanges —26— and —27— are arranged 70 one in advance of the other but at opposite sides of the shift block with their adjacent ends in substantially the same transverse plane, the left hand member —26— being movable into and out of registration with 75 the left hand slot —21— to control the tripping of the left hand sear and firing of the left hand barrel, while the right hand member —27— is movable into and out of registration with the right hand slot —21— to 80 control the tripping of the right hand sear and firing of the corresponding barrel. For example, if it is desired to fire the left hand barrel first, the shift block —25— is moved by hand to register the left hand member 85 —26— with the adjacent slot —21—, by which operation the right hand member —27— is moved out of registration with its corresponding slot —21— and, therefore, when the trigger is pulled or elevated, the 90 left hand sear will be engaged and tripped by the member —26— while the projection —20— of the right hand sear will simply pass into the corresponding slot —21— without effecting its operation, and will, there- 95 fore, hold the corresponding hammer in its cocked position. On the other hand if it is desired to fire the right hand barrel first, the shift block —25— is moved by hand to bring the right hand member —27— into 100 registration with the corresponding slot —21— by which operation the left hand member —26— is moved out of registration with its corresponding slot, thereby causing the right hand member —27— to trip the 105 corresponding sear, while the left hand sear will simply pass into the corresponding slot as the trigger is pulled or elevated, leaving the left hand sear in position to hold the corresponding hammer in its cocked posi- 110 tion. Now in order to fire the other barrel, after the first one has been fired in the manner just described, I have provided a latch bar —30— which co-acts in the manner here- 115 after described, with a suitable latch plate —31—, the latch bar —30— being slidably mounted within the shift block —25— between the sear tripping members —26— and —27— and an additional guide flange —32— some distance in front of the sear 120 tripping member —26— while the latch plate —31— is provided with a slotted foot adjustably secured to the trigger plate —4— by suitable clamping means as a set screw —34—. The latch plate —31— is, therefore, 125 stationary with the trigger plate —4— and is provided with escapement shoulders or lugs —36— and —37— arranged one in advance of the other and in planes one above the other; i. e., the shoulder —36— is dis- 130

posed in a plane below and at the rear of the shoulder —37— leaving an intervening space between them for the reception of the rear end of the latch bar —30—. The latch bar —30— is normally interlocked with the rear shoulder —36— of the latch plate —31— which temporarily holds it in its position against the action of a retracting spring —40—. Now assuming that one of the sear tripping members, as, for example, the right hand member —27—, is registered with its corresponding slot —21— for tripping the right hand sear and firing the corresponding barrel, then by pulling or elevating the trigger —23— the right hand sear will be tripped and the corresponding barrel fired by the sear tripping member —27—, and at the same time the latch —30— will be lifted out of holding engagement with the rear detent —36— and will be drawn forwardly by the spring —40— into engagement with the front detent —37— while the trigger is still elevated.

The latch —30— will be temporarily held in engagement with the front detent —37— during the recoil and rebound or involuntary pull upon the trigger to prevent firing of the second barrel until the pressure of the finger upon the trigger is entirely relieved, which allows a trigger spring —33— or gravity to depress the trigger to its normal position, thereby carrying the latch —30— downwardly with it until said latch is disengaged from the front detent —37—, whereupon the spring —40— draws the latch bar still farther forward and moves a portion —41— thereof across the slots —21— and directly under the left hand sear which is to be fired. The latch bar —30— is now in its extreme forward position and by pulling or elevating the trigger —23— the portion —41— of the latch bar will engage and trip the left hand sear for firing the corresponding barrel. Both barrels are now fired and the hammers may be recocked in the manner previously described, by simply opening the gun at the breech line, during which operation the latch bar —30— is returned to its operative position in engagement with the rear detent —36— against the action of the spring —40— by simple mechanism presently described. This latch returning mechanism preferably comprises separate sliding bars —10'—, each slidably mounted in a recess or channel —6'— in one of the hammers —7—, the rear end of each bar —10'— being off set downwardly and rearwardly into the plane of movement and adapted to engage the front end of the latch bar, while the front ends of the bars —10'— are provided with bevel faces similar to and normally coincident with the bevel faces —11— of the hammers and adapted to be engaged by extension —12— of the fore end piece. Each sliding

bar —10'— is moved rearwardly independently of the other against the action of a retracting spring —14'— during the cocking of the hammers by the opening of the gun, which causes the rear ends of said bars —10'— to engage the front end of the latch bar —30— and to return the latter to its normal or starting position with the latch —30— in engagement with the rear shoulder —36—, the rear portion of the latch bar, upon which the hook or latch is mounted consisting of a spring adapted to yield laterally to allow the rear beveled face of the latch bar to ride against the side edge of the rear shoulder —36— as the latch bar is returned. Now, as soon as the gun is closed, causing the depression of the extension —12— of the fore end piece away from the inclined faces —11— the bars —10'— will be returned to their starting positions, or to their extreme forward movement by the springs —14'—, thereby withdrawing the rear ends of said sliding bars some distance away from the front end of the latch bar, and allowing the latter to be drawn forwardly by the spring —40— as the trigger is pulled in the manner previously described.

Another feature of my invention consists of a fastened trigger —50—, which is pivoted to and recessed in the finger piece of the trigger —23—, and is provided with a detent —51— above its pivot, which is normally spring pressed into engagement with the under side of the trigger plate by spring —52— and best seen in Figs. 2 and 4. The object of this fastened trigger is to prevent an accidental discharge of the gun during the shifting movement of the shift block —25— by means of the finger piece —28—. The front end of the trigger is pivoted at —42— to the rear end of the detent block —19— so as to allow the rear end of the trigger to rock upwardly from its normal position, preferably against the action of a comparatively light spring —33—.

It will be seen from the foregoing description that the detents —36— and —37— co-acting with the latch —30— serve as an escapement mechanism to cause the sear tripping portion —41— of the latch bar to move step by step from a point at the rear of the slots —21— and overhanging portions of the sears —15— to a point directly under the rear end of the untripped sear.

Now in order to prevent accidental firing of the second barrel by what is commonly known as the "involuntary pull" resulting from the instantaneous recoil and rebound of the gun after firing the first barrel, I have provided a simple retarding device for the trigger to prevent the latter from returning too suddenly to its normal position, and thereby causing the latch —30— to remain in holding engagement with the detent —37— to prevent the movement of the por-

tion —41— of the latch bar under the untripped sear during such recoil and rebound of the gun, or until the danger from involuntary pull has passed. This retarding device consists in this instance of what may be termed as a rotary gyral disk —43— secured to a co-axial pinion —44— which, together with the disk, is journaled in a suitable bracket —45—, the latter being secured to the plate —4—.

One of the flanges, as the left hand flange —22— of the trigger —23—, is extended rearwardly some distance beyond the opposite flange and terminates in a tooth segment —46— which is concentric with and swings on axis or pivot —42— of the trigger and meshes with the pinion —44—. This disk —43— is preferably circular and concentric with its axis, and is preferably made of some non-corrodible substance so as not to deteriorate in use. The disk —43— begins to rotate immediately upon an initial pull upon the trigger in raising the latter to trip the sear of the first barrel to be fired, and the instant the sear is tripped, the upward pull exerted upon the trigger causes the disk to revolve with greater speed so that the trigger is actually carried upward farther than the finger would naturally pull it, through the medium of the rack and pinion by the momentum of the disk. It is this momentum, together with the inertia of the disk, which retards the too sudden return of the trigger to its normal position after the firing of the first barrel, thereby temporarily holding the latch —30— in engagement with the detent —37— during the recoil and rebound of the gun, and preventing accidental firing of the second barrel by involuntary pull and yet allowing the trigger to gradually settle back to its starting position after the danger of involuntary firing of the second barrel has passed, so that the gunner may discharge the second barrel at any time thereafter.

It will be observed upon reference to Fig. 1 that a slight clearance is left between one end of the hammer spring and adjacent abutment therefor, the object of which is to permit the firing pin to rebound from the cartridge.

What I claim is:—

1. In a breech loading double barrel gun, straight drive hammers, one for each barrel, separate compression springs, one for each hammer, separate sears movable with the hammers, detents for the sears, a single trigger movable independently of the sears, and a sear tripping device slidable lengthwise of the trigger for engaging and tripping the sears.

2. In a breech loading gun, a frame and barrels, sliding hammers, one for each barrel, sears each pivoted to and movable with one of the hammers, a sear block having sear

engaging shoulders for engaging the sears and holding the hammers in their cocked positions, a trigger for tripping the sears, and means for holding the tripped sear out of engagement with the trigger.

3. In a double barrel breech loading gun, a gun frame, barrels rockable on the frame, hammers, one for each barrel, sears on the hammers, detents for the sears, a trigger for tripping the sears, and means for holding the tripped sear out of engagement with the trigger as the latter is pulled.

4. In combination with the hammers, sears and hammer spring of a double barrel gun, detents for the sears to hold the hammers in their cocked positions, a single trigger for both sears, said trigger having slots with which portions of the sears register when the hammers are cocked, and a shift block slidable manually lengthwise of the trigger and having sear tripping shoulders movable into and out of registration with the slots to trip one of the sears independently of the other as the trigger is pulled.

5. In combination with the hammers, sears and hammer springs of a double barrel gun, detents for the sears to hold the hammers in their cocked positions, a single trigger for both sears, said trigger having slots with which portions of the sears register when the hammers are cocked, and a shift block slidable manually lengthwise of the trigger and having sear tripping shoulders movable into and out of registration with the slots to trip one of the sears independently of the other as the trigger is pulled; a latch plate having escapement shoulders and a spring actuated latch-bar slidable on the shift block and successively engaging said shoulders as the trigger is pulled, said latch-bar having a portion thereof movable across the slot of the untripped sear to trip the latter as the trigger is pulled the second time after firing the first barrel.

6. In a single trigger mechanism for double barrel guns, a tooth segment on the trigger, a rotary pinion meshing with said segment and a retarding device actuated by said pinion for retarding the return of the trigger after the firing of one of the barrels.

7. In a single trigger mechanism for double barrel guns, a tooth segment on the trigger, a rotary pinion meshing with the segment and a circular disk co-axial with the pinion and rotated thereby for retarding the return of the trigger to its normal position after the firing of one of the barrels.

8. In a single trigger double barrel gun, a pair of sliding hammers, means for cocking the hammers, a fixed block, shoulders on the block, sears pivoted to the hammers and engaging said shoulders to hold the hammers in their cocked positions, a single trigger, means actuated by the trigger for tripping the sears one at a time, and compres-

sion springs between the block and hammers for forcing said hammers to their firing positions.

5 9. In a single trigger double barrel breech loading gun, a pair of sliding hammers, means including sears pivoted to the hammers and movable therewith for holding the latter in their cocked positions, a single trigger, and movable means actuated there-

by for tripping the sears one at a time as 10 the trigger is pulled.

In witness whereof I have hereunto set my hand this 15th day of February, 1909.

JOHN A. RICKETTS.

Witnesses:

GEO. K. PARR,

M. D. SHAW.