(No Model.) 6 Sheets—Sheet 1.

J. M. BROWNING.

BOX MAGAZINE FIREARM.

No. 599,595. Patented Feb. 22, 1898.

Witnesses.
J. F. Shumway.
Lillian D. Kelsey.

John M. Browning
Inventor
By his Atys. Earle Seymour

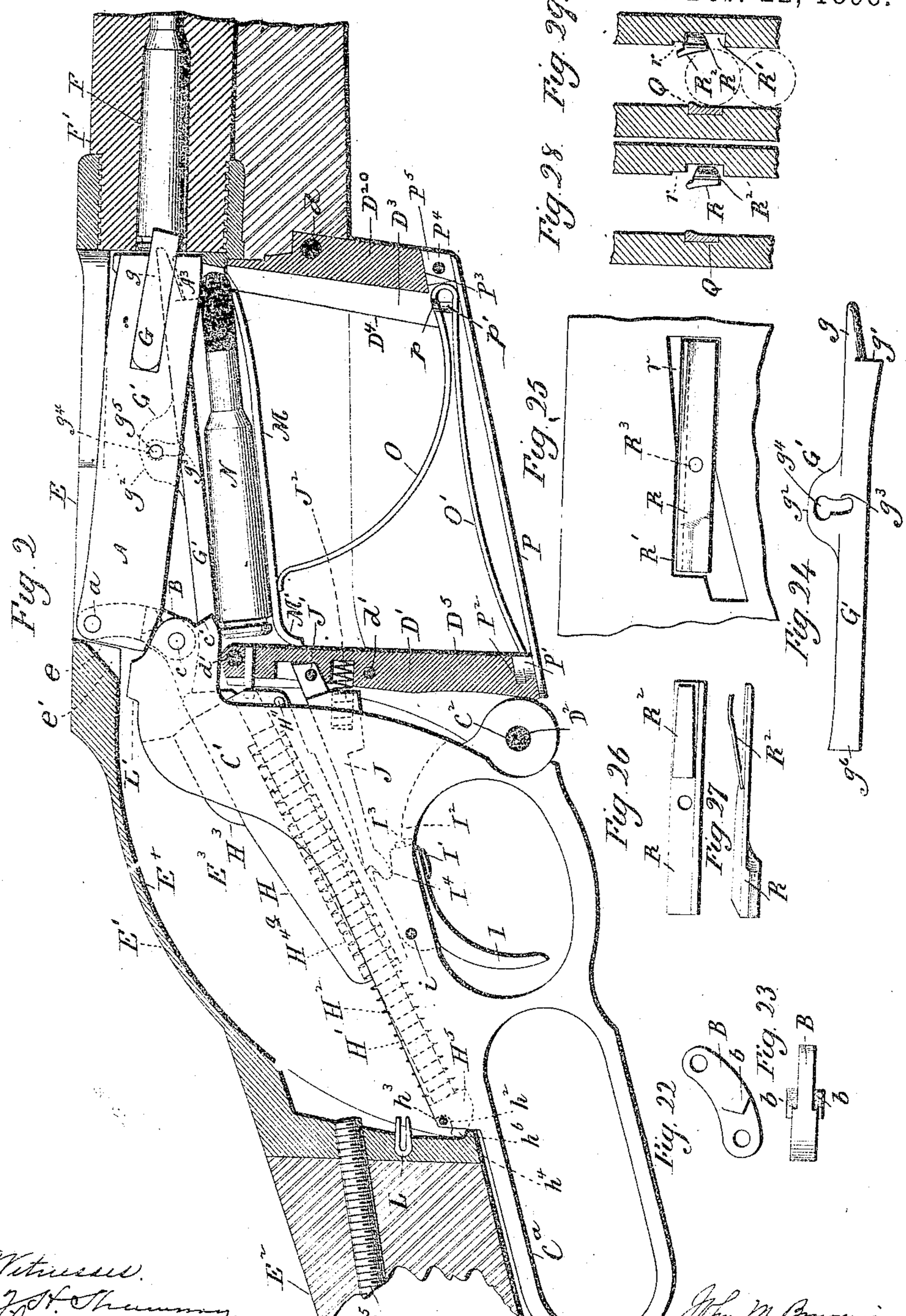
(No Model.)

6 Sheets—Sheet 2.

J. M. BROWNING.

BOX MAGAZINE FIREARM.

No. 599,595. Patented Feb. 22, 1898.



Witnesses.
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By atty. Earle Seymour

(No Model.)

6 Sheets—Sheet 3.

J. M. BROWNING.

BOX MAGAZINE FIREARM.

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Fig. 3.

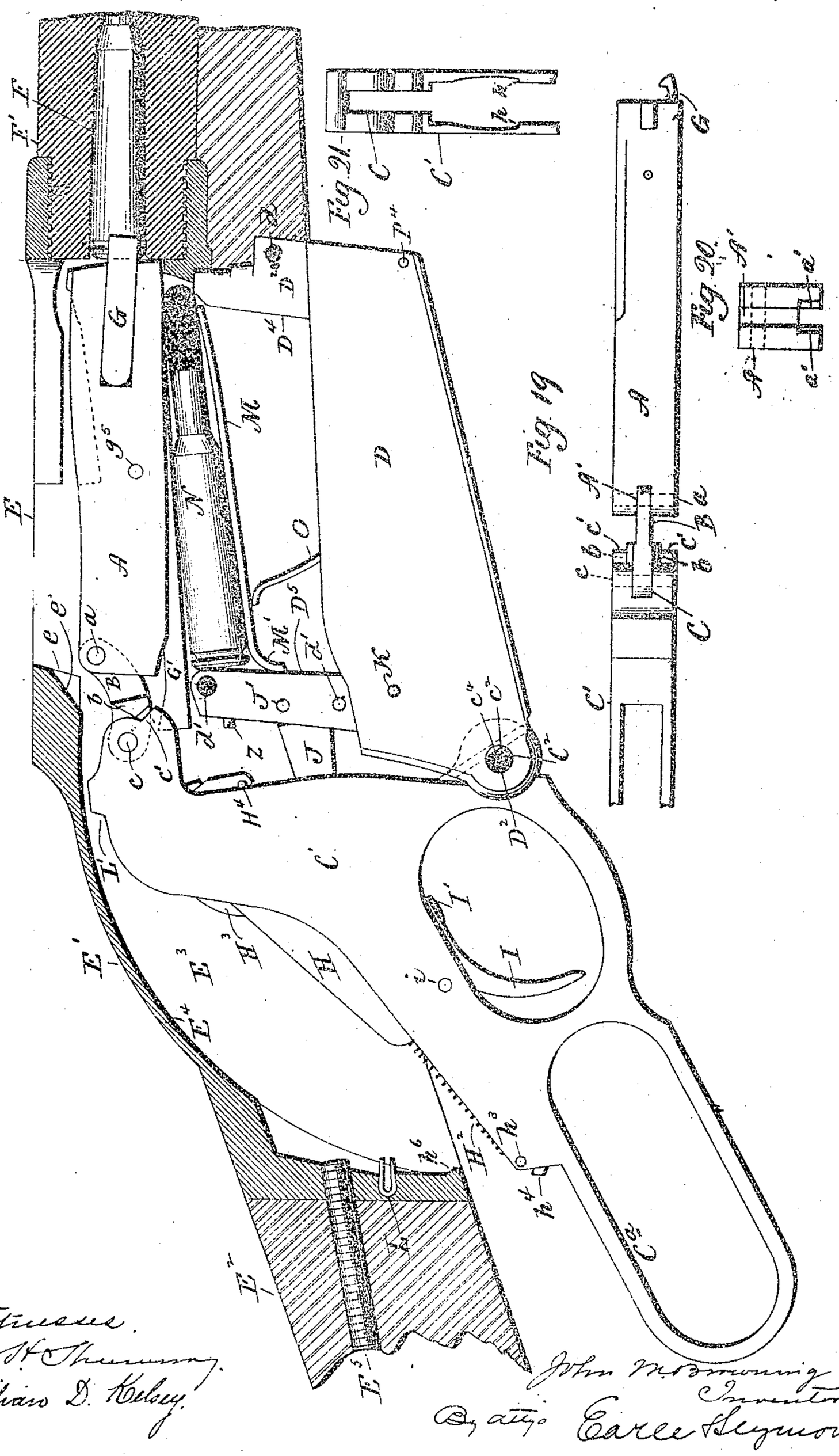

Fig. 19.

Fig. 20.

Witnesses.
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(No Model.)

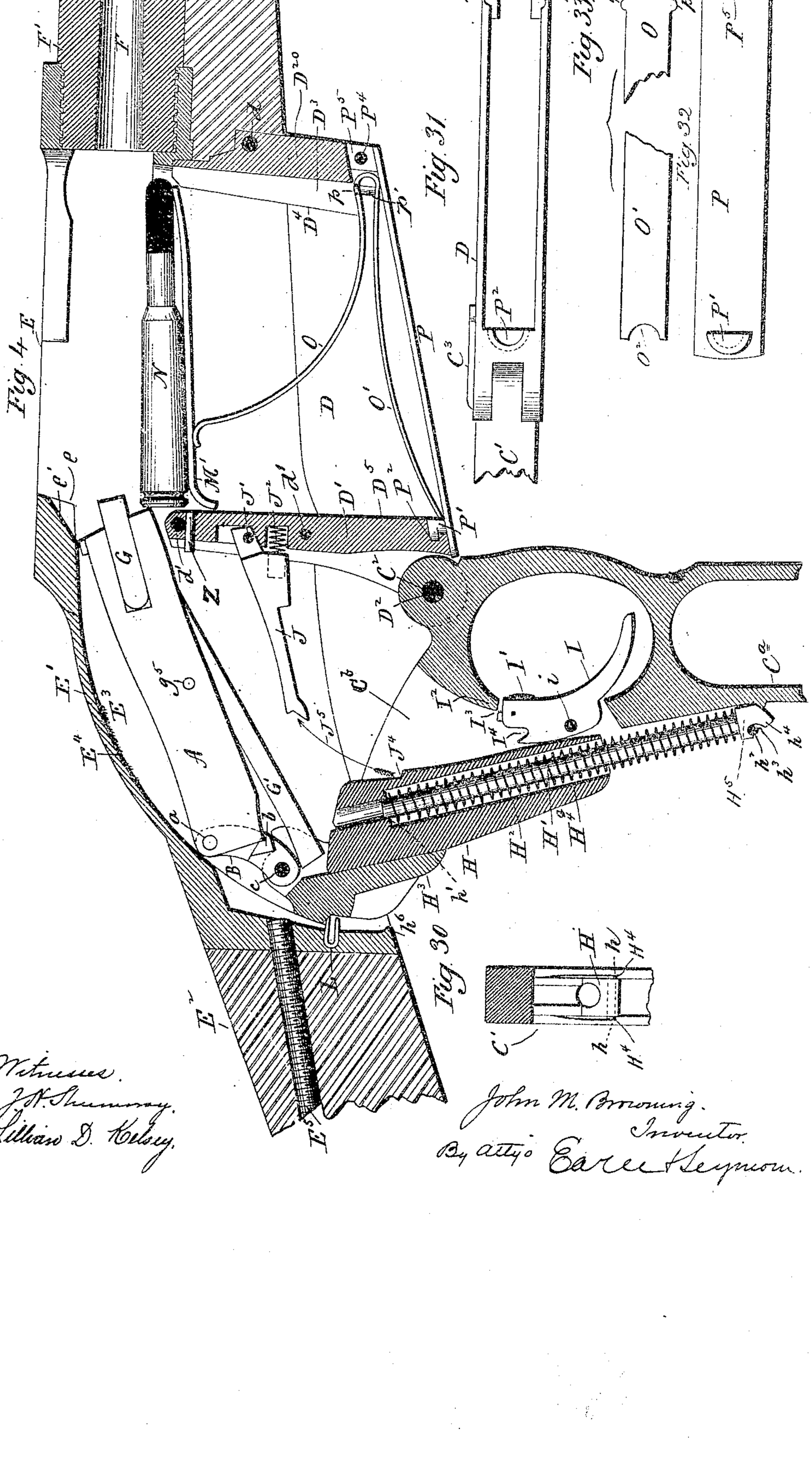
6 Sheets—Sheet 4

J. M. BROWNING.

BOX MAGAZINE FIREARM.

No. 599,595.

Patented Feb. 22, 1898.



Witnesses.
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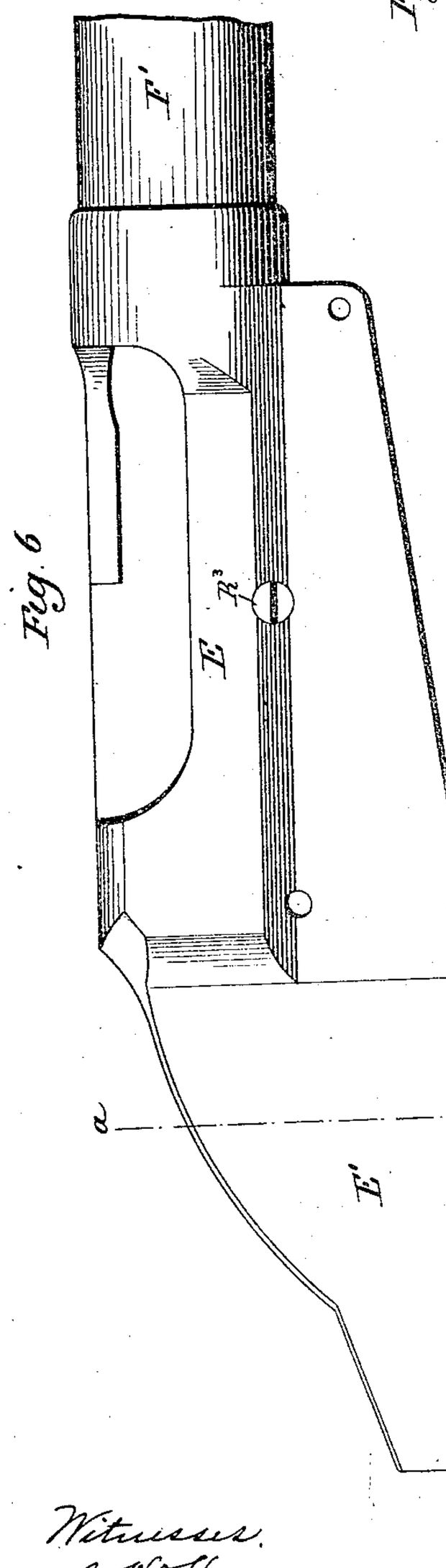
(No Model.)

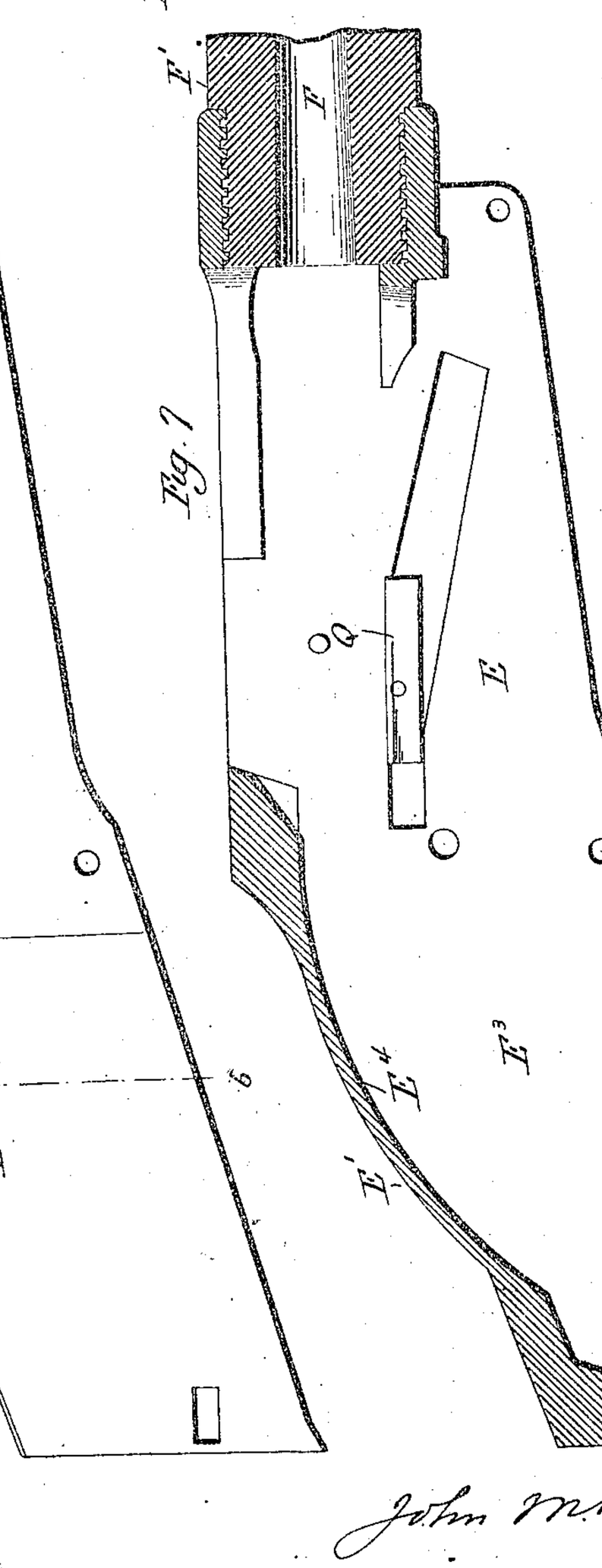
6 Sheets—Sheet 5.

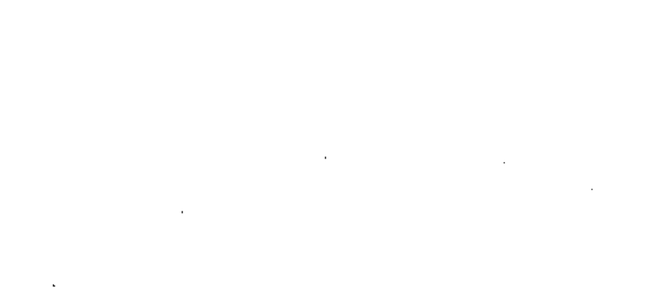
J. M. BROWNING.

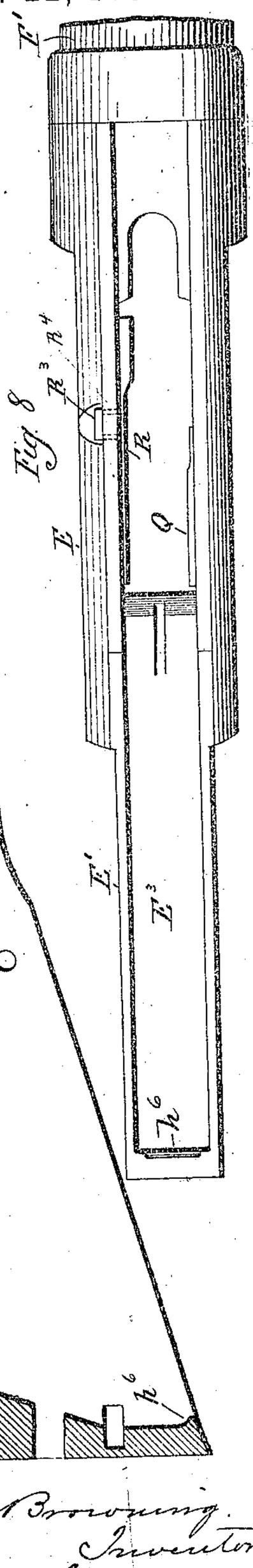
BOX MAGAZINE FIREARM.

No. 599,595. Patented Feb. 22, 1898.









Witnesses.
J. H. Shumway.
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(No Model.) 6 Sheets—Sheet 6.

J. M. BROWNING.

BOX MAGAZINE FIREARM.

No. 599,595. Patented Feb. 22, 1898.

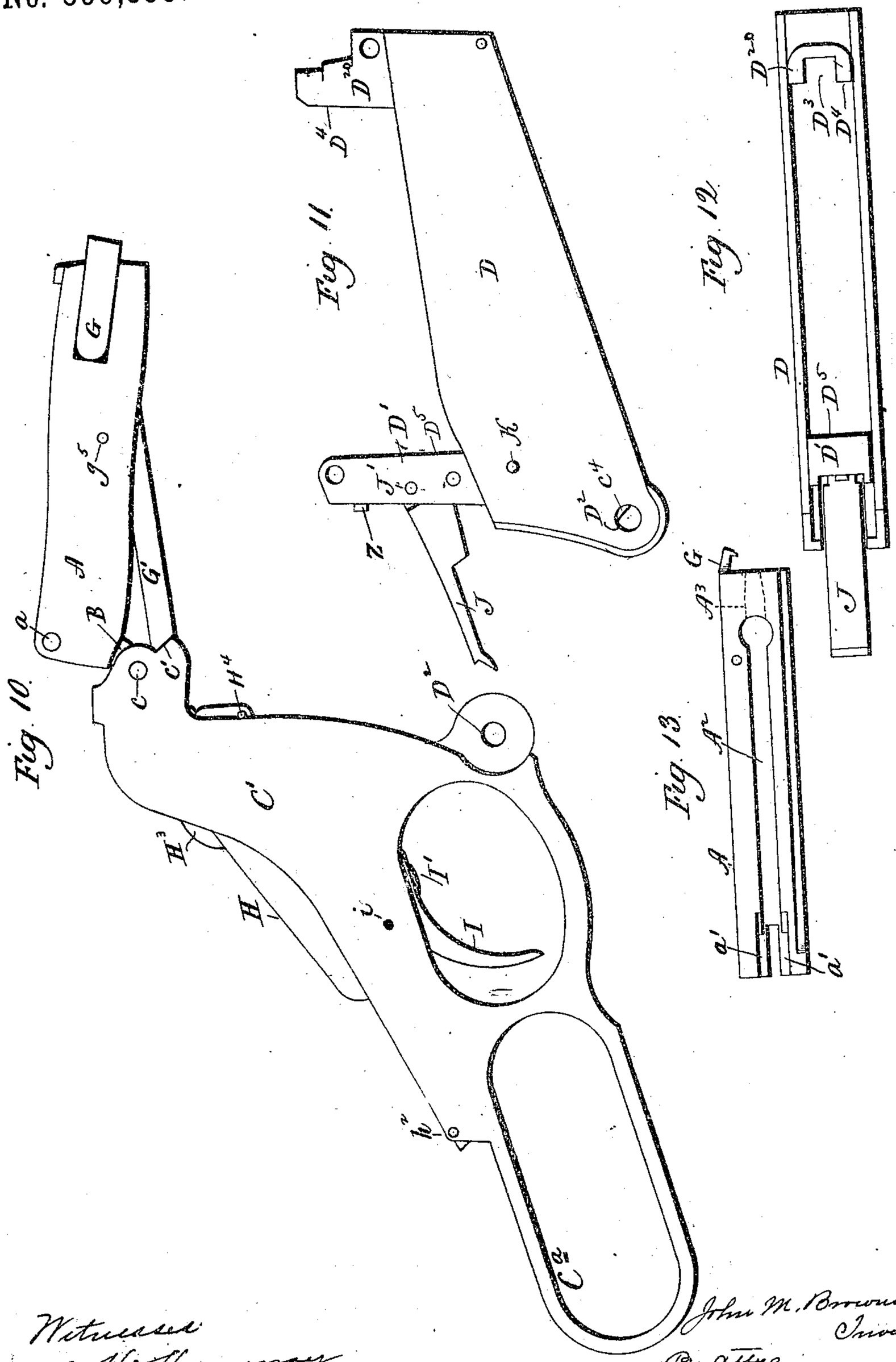

Fig. 10.

Fig. 11.

Fig. 12.

Fig. 13.

Witnesses
J. H. Thurmay
Lillian S. Kelley.

John M. Browning.
Inventor.
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Earle Seymour

UNITED STATES PATENT OFFICE.

JOHN M. BROWNING, OF OGDEN, UTAH, ASSIGNOR TO THE WINCHESTER REPEATING ARMS COMPANY, OF NEW HAVEN, CONNECTICUT.

BOX-MAGAZINE FIREARM.

SPECIFICATION forming part of Letters Patent No. 599,595, dated February 22, 1898.

Application filed May 5, 1897. Serial No. 635,217. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. BROWNING, of Ogden, in the county of Weber and State of Utah, have invented a new Improvement in Firearms; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, Sheet 1, a broken view, in side elevation, of one form which a gun constructed in accordance with my invention may assume; Fig. 2, Sheet 2, a broken view of the gun, partly in central vertical longitudinal section and partly in side elevation, the parts of the action mechanism being shown in the positions due to them when the gun is closed and locked. Fig. 3, Sheet 3, a similar view showing the gun closed, but unlocked; Fig. 4, Sheet 4, a similar view showing the gun fully open; Fig. 5, Sheet 1, a broken plan view of the gun; Fig. 6, Sheet 5, a detached broken view of the gun-frame in side elevation, showing also the breech end of the gun-barrel; Fig. 7, a view of the same parts in vertical longitudinal section; Fig. 8, a reverse plan view of the same parts; Fig. 9, a view of the gun-frame in vertical section on the line *a b* of Fig. 6; Fig. 10, Sheet 6, a detached view, in side elevation, of the operating or finger lever, the breech-block, the link connecting them, and the instrumentalities mounted in the said lever and block, this view showing the organization of the lever and block and their associated instrumentalities, so as to be removed from and introduced into the gun virtually as one piece; Fig. 11, a detached view, in side elevation, of the box-magazine and sear; Fig. 12, a plan view thereof; Fig. 13, a detached reverse plan view of the breech-block with the firing-pin removed; Fig. 14, Sheet 1, a detached perspective view of the assembling-pin and its finger-piece; Fig. 15, a sectional view on a line *c d* of Fig. 1, showing the assembling-pin as locked into the box-magazine; Fig. 16, a detail view, partly in side elevation and partly in section, showing the assembling-pin in the position in which it is inserted into or removed from its pivot-hole, the finger-piece being represented by broken lines; Fig. 17, a similar view showing the said assembling-pin and finger-piece in their locked positions; Fig. 18, a sectional view showing the push-pin which coacts with the finger-piece of the assembling-pin; Fig. 19, Sheet 3, a detached plan view of the breech-block, the forward end of the operating-lever, and the link by which they are connected together; Fig. 20, a detached view, in rear elevation, of the breech-block with the firing-pin removed; Fig. 21, a detached broken view, in front elevation, of the forward end of the operating-lever; Fig. 22, Sheet 2, a detached view, in side elevation, of the connecting-link; Fig. 23, a plan view thereof; Fig. 24, a detached view, in side elevation, of the firing-pin; Fig. 25, a broken view showing the inside of the right-hand wall of the receiver and the horizontally-arranged rocking cartridge-guide; Fig. 26, a detached view of the said guide in inside elevation; Fig. 27, a detached perspective view of the said guide; Fig. 28, a sectional view through the receiver, showing the fixed and rocking cartridge-guides, the latter being shown in its downwardly and outwardly rocked position; Fig. 29, a corresponding view showing the rocking guide in the position in which it blocks the upward movement of the cartridges; Fig. 30, Sheet 4, a sectional view of the forward end of the operating-lever, looking at the forward end of the hammer; Fig. 31, a detached reverse plan view of the box-magazine, showing also the forward end of the operating-lever; Fig. 32, a plan view of the box-magazine cover; Fig. 33, a detached plan view of the forward end of the carrier-spring, showing its two locating-lugs.

My invention relates to an improvement in that class of firearms known as "lever-guns," from the fact that their breech mechanisms are operated by means of an operating or finger lever, the object of my invention being to produce a gun composed of comparatively few, simple, and strong parts, constructed and organized so as to be dismembered and reassembled with the minimum expenditure of time and labor and built with particular reference to withstanding the explosive force of high-pressure powders and to reliability of action and safety in use.

With these ends in view my invention consists in a breech-block and operating-lever permanently united by means of a link and adapted to be introduced into and removed from the gun-frame as one piece; in an operating-lever adapted to have the hammer, hammer-spring, and trigger carried by it; in an operating-lever adapted to be locked in its closed position by means of the hammer-spring and a pin which acts as a guide for the hammer; in a buffer constructed and arranged to cushion the action of the operating-lever as it reaches its open position; in a gun-frame having a chambered rearward extension or tang into which the breech-block is retracted in a curved path by means of the operating-lever, the inner portion of which swings back and forth in the chamber of the said extension or tang; in a sear extending rearward and adapted to directly coact with a hammer and a trigger, both of which are mounted in and swung with the operating-lever; in a breech-block having its lower face slotted for the reception of a suspended or pendulous firing-pin which is retracted by the action of a retracting-pin mounted in the breech-block; in a horizontally-arranged vertical rocking cartridge-guide located in a recess formed in one of the side walls of the receiver of the gun-frame and adapted to retire to permit the cartridges to be forced downward past it from above, but blocking the upward movement of the cartridges from below; in a box-magazine having a forwardly-inclined forward end wall and a virtually straight rear end wall, in combination with a spring-actuated carrier the ends of which coact with the said walls, whereby the carrier assumes a position more and more nearly parallel with the gun-barrel as it is lifted in the box-magazine; in a box-magazine cover having peculiar adaptation at its rear and forward ends for being secured to the open lower end of the box-magazine; in an assembling-pin provided with a finger-piece and adapted to be readily introduced into and removed from the gun and constituting the pivot on which the operating-lever swings, and in certain other details of construction which will be hereinafter described, and pointed out in the claims.

As herein shown, my invention has been embodied in a box-magazine gun, although it may also be embodied in tubular-magazine guns or even in single-shot guns.

In carrying out my invention, as herein shown, I employ a compound-movement breech-block A, the rear end of which is formed with a centrally-arranged vertical slot A′ for the reception and clearance of a short operating-link B, the forward end of which is connected with the rear upper corner of the breech-block by means of a horizontally-arranged pivot *a*, passing through the said corner of the block. The rear end of the said operating-link is inserted into a centrally-arranged vertical slot C, formed in the nose-like inner end of the operating-lever C′, which is sometimes called the "finger-lever" from the fact that its bow C^a receives the fingers of one hand of the user when the gun is being fired. A pivot *c*, mounted in the said inner end of the operating-lever, passes through the rear end of the said operating-link B, which thus connects the breech-block and operating or finger lever. The said link is formed about midway of its length with two corresponding laterally-projecting abutment-lugs *b b*, which coact with two corresponding abutment-shoulders *c′ c′*, formed at the nose-like extreme inner end of the operating-lever. The engagement of the said abutment-lugs with the said abutment-shoulders prevents the link from dropping down too far during the rearward movement of the breech-block, whereby the forward end thereof is steadied. The lower end of the slot A′ in the rear end of the breech-block is laterally cut away at *a′ a′*, Fig. 20, for the clearance of the said lugs when the block is being lifted into its locked position, in which it is shown in Fig. 3. The operating-lever C′ is itself pivotally hung in the lower rear corner of the box-magazine D, which is rigidly secured to and depends from the receiver E of the gun-frame by means of a removable pivot, which I shall hereinafter designate as the "assembling-pin" C^2, as that term well describes the function of the part referred to. Here I may remark that I use the word "receiver" to designate that portion of the gun-frame which receives the cartridges preparatory to their being pushed forward and inserted into the cartridge-chamber F, formed in the rear end of the gun-barrel F′. The inner portion of the said lever swings back and forth in a chambered tang E′, forming, as it were, a rearward extension of the receiver and constituting a portion of the gun-frame. Preferably the chambered tang will be integral with the receiver, though that is not essential. The gun-frame is secured to the gun-stock E^2 by means of a long screw-bolt E^5, which enters the rear end of the chambered tang, as clearly shown in Figs. 2, 3, and 4.

The breech-block A is provided with a spring-actuated hook-extractor G, which may be of any approved construction. It is also provided with a firing-pin G′, Fig. 24, formed with a conical nose *g* and with an abutment-shoulder located at the base of the said nose and limiting the forward movement of the pin and with an upwardly-extending lug g^2, containing a slot g^3, having its upper end longitudinally enlarged, as at g^4, and its lower end bowed on a forward curve. This slot receives a horizontal retracting-pin g^5, mounted in the breech-block and serving to retract the firing-pin and to connect the firing-pin with the breech-block, of which it has considerable independent movement, as will be described later on. The said firing-pin is located in a long deep slot A^2, formed in the lower face of the breech-block. This slot does not extend through the forward end of

the breech-block, which contains a conical passage A^3 enough larger than the nose g of the firing-pin to permit the firing-pin to virtually swing upon its nose as upon a center, the length and arrangement of the slot g^3, formed in the firing-pin, allowing the rear end of the pin to have a very marked vertical movement. When the gun is closed and locked, at which time the rear end of the breech-block rests upon the nose-like inner end of the lever, as shown in Fig. 2, the rear end g^6 of the firing-pin passes under the rounded lower end of the operating-link B and enters the lower end of the vertical slot C, formed, as before mentioned, in the nose-like inner end of the operating-lever C′, the said end of the pin being then in position to be struck a blow by the hammer H, which in Fig. 2 is shown in its fired position. When the hammer strikes the end of the firing-pin, the same leaps forward, as it is allowed to do by the horizontal elongation g^4 of the upper end of its bowed slot g^3. The forward movement of the firing-pin is arrested by the engagement of its abutment-shoulder g' against the forward end wall of the long slot A^2, formed in the bottom of the breech-block, whereby the retracting-pin g^5 is saved from possible harm. The retraction of the firing-pin will be described at another time.

The inner portion of the operating-lever C′ is chambered, as at C^b, for the reception of the hammer H, the hammer-guide pin H′, and the spiral hammer-spring H^2. The hammer consists of a flat block slightly tapered at its rear end and guided at its forward end by means of a guide-block H^3, located above it, and by means of a guide-pin H^4, mounted in its lower forward corner and riding upon two oppositely-located shoulders $h\,h$, formed in the side walls of the chamber C^b of the lever, as clearly shown in Fig. 30. The said hammer is itself formed with a longitudinal cylindrical bore H^{4a}, extending throughout its length and receiving the hammer-guide pin H′ and also receiving the hammer-spring H^2, the forward end of which abuts against a shoulder h', formed near the forward end of the said bore H^{4a}. The said spring H^2 also performs the function of a locking-spring for locking the operating-lever C′ in its closed position. For that purpose the rear end of the said hammer-guide pin H′ is furnished with a head H^5, the upper face of which is formed with a notch h^2 to receive the retaining-pin h^3. The said notch h^2 is made long enough to permit the longitudinal movement of the hammer-guide pin required for permitting the doubly-beveled nose h^1 of the head H^5 to spring over the locking-lug h^6, formed within the chambered tang E′, at the rear lower corner thereof, as shown in Figs. 2, 3, and 4. Just before the operating-lever comes into its completely-closed position the doubly-beveled nose h^1 of the head H^5 engages with the locking-lug h^6, and the lever being under rearward and upward draft at this time the hammer-spring H^2 is sufficiently compressed to allow the nose h^4 to snap over the locking-lug h^6, after which the hammer-spring will assert itself to keep the nose h^1 engaged with the upper face of the lug h^6, whereby the lever is kept in its locked position. In this way the hammer-spring H^2 performs a locking function in addition to its hammer-actuating function.

The operating-lever C′ also carries the trigger I, which is hung upon a pin i and provided with a safety-catch I′, which when pushed forward engages with the forward end wall I^2 of the slot I^3, formed in the finger-lever for the reception of the trigger. When the catch engages with the said wall I^2, the trigger is locked against swinging movement downward, whereby the gun is prevented from being fired until the safety-catch is brought back so as to clear the said wall. I do not, however, claim this safety-catch, which is old. The said trigger is formed in its forward end with a notch I^1, receiving the finger-like rear end of a sear J, which is suspended by a pivot J′ from the rear face of the rear post D′ of the box-magazine. A spring J^2, interposed between the base of the sear and the said post of the magazine, exerts a constant effort to lift the sear, whereby the sear is maintained in a constant position of readiness to be engaged by the cocking-notch J^4, formed in the lower edge of the hammer H, which in the closing of the gun moves in a curved path, (indicated by the arrow J^5,) as seen in Fig. 4. It will now be seen that the breech-block A, together with its hook-extractor G and firing-pin G′, the operating-link B, and the lever C′, together with the hammer H, the hammer-guide pin H′, the hammer-spring H^2, and the trigger I, are all organized together and constitute one piece so far as their introduction into and removal from the gun-frame is concerned. My improved gun, therefore, is on account of the construction just set forth very simple to assemble and take apart and easy of attention and repair. When the breech-block and lever and their associated instrumentalities are removed from the gun, the frame and chambered tang thereof are practically unoccupied, and therefore easily accessible for cleaning or for any other required attention.

To facilitate the introduction and removal of the connected breech-block and lever, I preferably employ a removable assembling-pin like that shown in perspective in Fig. 14. This is provided at its outer end with a finger-piece C^3, terminating in a tapered or punch-like end C^4, which will be found convenient in pushing the various pins and pivots out in taking the gun apart. In this view of it the finger-piece C^3 constitutes a dismounting-tool. The other end of the pin C^2 is formed with a flat face c^2 and a short transverse groove c^3. The pin is introduced into a suitable hole D^2 in the box-magazine D in the position in which it is shown in Fig. 16, its

flat face c^2 being then in position to pass under a locking-pin c^4, located near the inner end of the said hole and situated in the left-hand wall of the box-magazine. The finger-piece is then lifted in the direction of the arrow c^5 into the position in which it is shown by full lines in Fig. 1 and by broken lines in Fig. 17, whereby the groove c^3 of the pin is caused, so to speak, to take over the pin c^4, as shown in Fig. 15, whereby the assembling-pin is prevented from being removed so long as it is kept in engagement with the said locking-pin. That engagement is preserved by the engagement of the finger-piece C^3 by a push-pin K, Figs. 1 and 18. The said push-pin K is mounted in suitable position in the box-magazine and is actuated by a spiral spring K′, which is held in place by a screw K^2, the push-pin, spring, and screw being located in a transverse cylindrical chamber K^3, formed for their reception in the box-magazine. For its coaction with the said push-pin the finger-piece C^3 is formed upon its inner face and near its outer end with a shallow beveled notch C^5, Fig. 14, adapting it to crowd the push-pin inward, so as to permit the finger-piece to ride over it in going to its locked position. When, however, the finger-piece has gone into this position, the push-pin recovers itself and engages with the edge of the finger-piece at a point opposite the said notch, as shown in Fig. 1, thus preventing the finger-piece from being accidentally swung back, so as to rotate the pin C^2, and keep it from the locking-pin c^4. On the other hand, the finger-piece is prevented from moving in the other direction by the groove c^3 in the pin C^2, which extends only partially around the pin and prevents it from being rotated in the wrong direction. To remove the breech-block and operating-lever and their associated parts from the gun, it is only necessary to press the push-pin inward with the finger or any convenient object and then swing the finger-piece back to the position in which it is shown by broken lines in Fig. 16, whereby it is disconnected from the locking-pin c^4, so that it may be drawn directly outward, after which the lever and block may be drawn away from the gun, as though in one piece.

It will be observed by reference to Fig. 2 of the drawings that the pivot c, which connects the lower end of the operating-link with the inner end of the operating-lever, stands a trifle forward of a straight line connecting the center of the pivot a, which connects the upper end of the said link with the breech-block and the assembling-pin C^2, on which the operating-lever swings. On account of this relative arrangement of the pivots a, c, and C^2 the recoil following the explosion of a cartridge tends to throw the parts into their closed positions in case it be conceded that there is any lost motion to be taken up. In other words, the tendency of the recoil being to push the breech-block back, the tendency of the backward movement of the breech-block is to depress the inner end of the operating-lever and lift its lower end. The upper wall E^4 of the chamber E^3 of the chambered tang is struck on a large circle, of which the hole D^2, receiving the assembling-pin C^2, on which the lever swings, is the center. The forward end of this wall may be said to terminate in a recoil-abutment e, against which the rear end of the breech-block is lifted for locking the breech-block in its closed position. This recoil-abutment has a central notch e' for the clearance of the connecting-link B before mentioned.

It will readily be understood that my improved gun is well adapted to withstand the expansive force of high-pressure powders, inasmuch as the entire recoil of the gun is taken by the breech-block, which when closed and locked constitutes the only piece between the head of the cartridge and the frame of the gun against the recoil or abutment shoulder of which the rear end of the block impinges when lifted into its locked position.

At a point just above the locking-lug h^6, which I have already referred to, I insert into the chambered tang a U-shaped spring-buffer L, which is engaged by a shoulder L′, formed at the base of the nose-like inner end of the lever C′. Just as the lever reaches its full open position the shoulder L′ comes into contact with the buffer L, which yields sufficiently to cushion the stopping of the lever, whereby the racking of the gun is avoided when it is being rapidly manipulated. Of course the spring-buffer may be replaced by a yielding buffer of any other form or construction.

The gun herein shown is provided with a box-magazine D, although it might be furnished with a tubular magazine, as has been already stated. The said box-magazine is provided with a rear upright or post D′ and a forward upright or post D^{20}, the magazine being secured in place by means of a pin d, passing through the receiver and through the forward upright D^{20}, and by means of pins d' d', passing through the receiver and through the rear upright D′. Within the magazine I locate a cradle or carrier M, consisting of a long narrow plate having its forward end turned very slightly upward and having its rear end turned downward to form a trailing guide-cam M′. The inner face of the forward upright D^{20} is formed with a deep vertical slot or groove D^3, which receives the ends of the bullets of the cartridges N. The forward end of the said cradle M engages with the inner face of the upright D^{20} on opposite sides of the slot D^3, the said face being forwardly inclined, as clearly shown in Figs. 2 and 4. The inner face of the rear upright D′ is nearly vertical and is engaged by the trailing guide-cam M′, formed by turning down the rear of the carrier M. The lower face of the carrier is engaged near the rear end thereof by the bowed upwardly-turned arm O of a two-armed carrier-spring, the lower arm O′ of which rests

upon the inner face of a cover P, applied to the bottom of the box-magazine. The said spring as thus constructed and applied exerts a constant effort to lift the rear end of the carrier, the spring operating thereupon, so that as the same moves upward it will come nearer and nearer to assuming a position parallel with the gun-barrel, for the reason that as the inner face of the forward upright D^{20} of the box-magazine is forwardly inclined the spring is given more and more opportunity of lifting the rear end of the carrier to the level of the forward end thereof. Under this construction if downward pressure is applied to the upper face of the forward end of the carrier it will be immediately checked against downward movement by the engagement of its extreme forward end with the inclined inner face D^4 of the forward upright, the trailing guide-cam M' at the rear end of the carrier rocking or camming on the straight inner face D^5 of the rear upright D' to lock the carrier against downward movement. On the other hand, if pressure is applied to the upper face of the rear end of the carrier the carrier-spring yields and the carrier is readily pushed down, the tendency being then to clear the cam guide end M' of the carrier from the straight inner face D^5 of the upright D'.

To insure the right location of the carrier-spring, its looped forward end is provided with two corresponding oppositely-located lugs p p, Fig. 33, designed to be received by two short vertically-arranged grooves p' p', Fig. 31, formed in the side walls of the box-magazine, at the forward end thereof, as shown in Fig. 31. These lugs and grooves are not necessary, but they insure the correct location of the carrier-spring. The rear end of the cover P, Fig. 32, is formed with a D-shaped undercut locking-stud P', adapted to be inserted into a suitable undercut locking-recess P^2, Figs. 2, 4, and 31, formed at the lower end of the rear upright D' of the box-magazine. The rear end of the arm O' of the carrier-spring is formed with a semicircular notch O^2 to adapt it to straddle the locking-stud P', whereby the said end of the spring is held in place when the gun is being assembled. The forward end of the cover is formed with a perforated retaining-lug P^5, Figs. 2, 4, and 32, which is received by a suitable slot P^6, Fig. 31, formed in the lower end of the forward upright D^2 of the box-magazine.

To secure the cover in place, it is applied to the bottom of the box-magazine and slid rearward thereupon until its undercut locking-stud P' has been fully entered into the undercut locking-recess P^2. A pin P^1 is then passed through the lower forward corner of the box-magazine and through the lug P^5, against which the looped forward end of the carrier-spring abuts, whereby the spring is held against longitudinal movement in either direction. The said cover is therefore easily removed and replaced.

At opposite points within the receiver I locate two cartridge-guides Q and R, the former being rigid and the latter being movable. The movable cartridge-guide R is located in a horizontal recess R', formed in the right-hand wall of the receiver, and is furnished upon its inner face with a flat spring R^2, which exerts a constant effort to move the rear end of the guide outward into the receiver, as shown in Fig. 28. This guide is loosely held in place by means of a screw R^3, Fig. 8, which is mounted in the receiver in a transverse hole R^4, formed in the right hand thereof and so much larger in diameter than the screw that the same is free to have a rocking or wabbling movement therein. When a cartridge is introduced into the box-magazine through the open top thereof and pressed downward upon the two cartridge-guides Q and R, the rear end of the movable guide R swings downward sufficiently to clear the upper edge of the guide from a horizontal shoulder r, formed in the upper portion of the recess R'. The guide R, having thus been cleared from the said shoulder r, is then free to move laterally outward into the recess R', whereby an ample passage-way is formed for the cartridge, which passes thence below the two guides into the body of the box-magazine. The cartridge is thus prevented from escaping upward between the guides, although it passed downward between them, for the reason that when the cartridge is pressed upward by the carrier-spring it is lifted against the said movable guide R, which it then in turn lifts, so as to bring its upper edge into position to collide with the shoulder r, which prevents it from moving laterally outward into the recess, as shown in Fig. 29.

The use of the movable cartridge-guide R above described adapts the box-magazine to be very conveniently loaded. I may here say that while one movable cartridge-guide has been found sufficient both guides may be made movable, if desired. It will be understood, of course, that the two cartridge-guides above described hold the rear ends of the cartridges down while they are being pushed forward by the breech-block into the cartridge-chamber F of the gun-barrel.

It will be observed by reference to the drawings that the path in which the hammer reciprocates is not in line with the firing-pin, and, furthermore, that the front or striking face of the hammer is not at a right angle to the path of its reciprocation. For these two reasons when the hammer strikes the firing-pin or the rear face of the rear upright D' of the box-magazine it tends to glance off and upward. This thrust is communicated by the hammer to the operating or finger lever C', and as it is exerted at a point in front of a plane intersecting the path of the hammer and the assembling-pin D^3, on which the said lever is hung at a right angle, the result will be that the said lever may be started from

its closed position or "jarred" open, as the saying is, in case the trigger is pulled when the fingers of the user are not passed through the bow of the lever for holding the same in its closed position.

To prevent the hammer from glancing off, as described, and also to provide additional security for preventing the lever from being jarred open, I may employ, as herein shown, a fixed pin Z, located in a horizontal plane in the upper end of the rear upright D′ and projecting rearwardly therefrom in position to be engaged by the forward end of the hammer just before the same reaches the limit of its forward excursion, at which time the projecting rear end of the pin enters the forward end of the long bore H^{4a}, formed in the hammer for the reception of the guide-pin H′ thereof.

Having now described my improved gun, I will briefly set forth the mode of its operation. Supposing the gun to be closed and locked, as shown in Fig. 2, and that it is desired to open it, the user grasps the finger or operating lever by the bow C^a at its lower end and by a quick downward impulse overcomes the tension of the hammer-spring, whereby the doubly-beveled nose h^4 of the locking-head H^5 of the hammer-guide pin H′ is cleared from the locking-lug h^6. During the first movement of the lever its nose-like inner end moves from under the rear end of the breech-block A, which is then pulled down by the operating-link B, so that it is entirely cleared from the recoil-abutment *e* of the gun-frame. The abutment-lugs *b b* of the operating link B are now engaged with the abutment-shoulders *c′ c′* of the said lever, the nose-like inner end of which is at this time about in line with the breech-block, which is then drawn rearward in a curved path until it is retracted entirely into the chamber E^3 of the chambered tang E′, as clearly shown in Fig. 4, which shows a cartridge N just emerging from the box-magazine D into a position in front of the forward end of the breech-block, which when it moves forward will push the cartridge forward under the control of the cartridge-guides Q and R until its head passes the forward ends thereof, after which it will rise into line with the cartridge-chamber F of the gun-barrel F′, into which it will be completely inserted by the completion of the forward movement of the breech-block. When the lever is drawn rearward from the position in which it is shown in Fig. 4, the breech-block is moved through a substantially segmental path out of the chamber of the chambered tang of the gun-frame and into the receiver. During the closing movement of the lever the cocking-notch J^4 of the hammer engages with the extreme rear end of the scar J, which stops the further forward movement of the hammer, after which the compression of the hammer-spring H^2 begins. The forward excursion of the breech-block having been completed, the further rearward movement of the lever causes the rear end of the breech-block to be lifted by the operating-link B up in front of the recoil-abutment *e*, the breech-block swinging vertically at this time upon the fulcrum formed by the engagement of its forward end with the forward end wall of the receiver. As the rear end of the breech-block lifts upward in front of the recoil-abutment *e* the nose-like inner end of the lever passes under the rear end of the breech-block, for which it then forms a support, as shown in Fig. 2. As the nose-like inner end of the lever passes under the rear end of the breech-block, as just described, its lower face engages with and has a cam-like action upon the upper end of the rear post or upright D′ of the box-magazine, upon which the nose-like inner end of the lever is then supported, the rear end of the breech-block being supported, as stated, upon the upper face of the nose-like inner end of the lever, and the nose-like inner end of the lever having its lower face supported upon the box-magazine, which in turn is rigidly secured to the frame of the gun. A remarkably-solid support is thus provided for holding the breech-block in its closed position. I may remark in this connection that in case features of my invention should be embodied in a tubular-magazine gun some other provision would be made for supporting the inner end of the operating-lever at the time the same supports the rear end of the breech-block. Just as the lever goes into its fully-closed position the doubly-beveled nose h^4 of the locking-head H^5 snaps over the locking-lug h^6, whereby the lever is locked in its closed position by the hammer-spring H^2. I should here remark that when the breech-block begins to enter the receiver on its forward excursion the pendulous firing-pin G′ engages with the upper end of the rear upright D′ of the box-magazine D, whereby the firing-pin is forced upward into the slot A^2, formed to receive it in the bottom of the breech-block A. At the same time that the firing-pin is being lifted into the breech-block, as described, it is retracted by the engagement of the forwardly-curved rear wall of its slot g^3 with the retaining-pin g^5, which might with propriety be called a "retracting-pin." The firing-pin is thus retracted before the gun is closed without the employment of any extra pieces for the purpose. I particularly wish to call attention to the fact that the retraction of the firing-pin takes place at the last moment and just before the gun is closed and locked, making the gun very safe. Just as the breech-block is being lifted into its locked position the trigger I, carried by the operating-lever, comes into engagement with the scar; but this engagement is not complete until after the breech-block has been closed and locked. I may mention that the operative engagement of the trigger with the scar

comes so close to the closing movement of the lever that the trigger cannot be pulled to operate the sear to release the hammer until after the lever has been fully locked in its closed position.

It is apparent that in carrying out my invention some changes from the construction herein shown may be made. I would therefore have it understood that I do not limit myself to the exact construction herein shown and described, but hold myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of my invention.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a firearm, the combination with a breech-block, of an operating-lever, and an operating-link uniting the said block and lever, and formed with two abutment-lugs which coact with the inner end of the said lever.

2. In a magazine-firearm, the combination with a breech-block having a vertical slot formed in its rear end, of an operating-lever having a vertical slot formed in its extreme forward end, and an operating-link having its ends entered into the said slots and connected at one end with the rear upper corner of the breech-block, and at its opposite end with the extreme forward end of the lever which is shaped to pass under the rear end of the breech-block for holding the same in its locked position.

3. In a firearm, the combination with the frame thereof, of an operating or finger lever, one of the said parts being provided with a buffer-shoulder and the other with a buffer which coact to cushion the lever as it reaches the limit of its open position.

4. In a firearm, the combination with an operating or finger lever, of a buffer consisting of a U-shaped spring mounted in the gun-frame in position to be engaged with the lever when the same reaches its open position.

5. In a firearm, the combination with a gun-frame comprising a receiver and a chambered rearward extension or tang, of an operating or finger lever, the inner end of which swings back into the said chambered tang when the lever is thrown open, and a yielding buffer located in the rear wall of the chamber of the said tang and engaged by the lever for cushioning the same when it reaches its open position.

6. In a firearm, the combination with an operating or finger lever formed with a hammer-chamber, of a hammer located in the said chamber so as to be reciprocated therein, a rearwardly-projecting hammer-guide pin entering the rear end of the said hammer and having bearing in the forward end thereof, a hammer-spring entering the rear end of the hammer and encircling the said pin, a trigger also mounted in the said lever, and a sear which coacts with the said trigger and also with the under face of the said hammer.

7. In a magazine-firearm, the combination with a breech-block, of an operating or finger lever, an operating-link connecting the upper portion of the rear end of the breech-block with the extreme forward end of the lever, a spring-controlled hammer mounted in and carried by the lever, and means combined with and carried by the lever for locking the same in its closed position.

8. In a firearm, the combination with an operating or finger lever, of a reciprocating hammer mounted therein, a hammer-guide pin located in the hammer, having bearing in the forward end thereof, projecting rearwardly therefrom, and adapted at its rear end to form a lock for holding the lever in its closed position, and a hammer-spring encircling the said pin the rear end of which engages with the lower portion of the rear wall of the chamber in which the lever swings.

9. In a firearm, the combination with an operating or finger lever, of a reciprocating hammer mounted therein, a hammer-guide pin located in the hammer, having bearing in the forward end thereof and projecting rearward therefrom, a hammer-spring encircling the said pin, and a locking-head located at the rear end of the said pin and having a beveled nose which coacts with the lower portion of the rear wall of the chamber in which the lever swings, for locking the lever in its closed position.

10. In a firearm, the combination with a breech-block, of a firing-pin mounted therein, an operating or finger lever formed with a hammer-chamber, an operating-link connecting the upper portion of the rear end of the breech-block with the extreme forward end of the lever which extends under the rear end of the block when the same is in its locked position, and a spring-controlled firing-hammer located in the hammer-chamber of the lever in which it is free to reciprocate, and adapted at its forward end to engage with the rear end of the firing-pin which depends from the breech-block.

11. In a firearm, the combination with a gun-frame having a receiver and a chambered tang, of a sear arranged to extend rearward into the chambered tang, an operating or finger lever, and a hammer and a trigger mounted in the said lever, the cocking-notch of the hammer engaging with the rear end of the sear to cock the hammer as the lever is swung into its closed position.

12. In a firearm, the combination with the box-magazine thereof, of a sear connected with the rear portion of the magazine and extending rearwardly therefrom, of an operating or finger lever, and a hammer and a trigger mounted therein, the hammer being ar-

ranged to engage with the sear for being cocked as the lever is swung into its closed position.

13. In a firearm, the combination with a chambered tang of an operating-lever having a hammer-chamber, a sear pivotally mounted by its forward end and extending rearwardly into the chamber of the tang, and a hammer and a trigger mounted in the said lever, and both coacting directly with the rear end of the sear when the lever is swung into its closed position.

14. In a firearm, the combination with a gun-frame comprising a receiver and a chambered tang, of a box-magazine having an upright which forms its rear end, a sear pivoted to the rear face of the said upright so as to extend rearwardly into the chamber of the said tang, a sear-spring located below the pivot of the sear for lifting the same into its operating position, and an operating or finger lever carrying a hammer and a trigger, both of which engage directly with the rear end of the sear which is drawn down against the tension of the sear-spring by the trigger for releasing the hammer.

15. In a firearm, the combination with an operating-lever, of an assembling-pin by which the said lever is pivotally suspended in the gun, the said pin being furnished with a rigidly-attached finger-piece by means of which it is turned into its locked and unlocked positions, and having its other end formed with a flat face and a short transverse notch, both of which coact with a locking instrumentality intersecting the hole formed in the gun for the reception of the pin.

16. In a firearm, the combination with the operating or finger lever thereof, of an assembling-pin by means of which the said lever is suspended in the arm, the said pin being formed at one end to be engaged with a locking instrumentality intersecting the hole formed in the gun to receive the pin the other end of which is furnished with a rigidly-attached finger-piece by means of which the pin is rotated into its locked and unlocked positions; and a push-pin mounted in the gun, exposed upon the outer face thereof and engaging with one edge of the said finger-piece for holding the same and hence the assembling-pin in its locked adjustment.

17. In a firearm, the combination with a gun-frame comprising a receiver and a chambered rearward extension or tang, of a breech-block, an operating or finger lever, a short connecting-link extending forward from the extreme forward end of the lever and connected with the rear end of the breech-block, a reciprocating hammer mounted in the lever, a trigger also mounted in the lever, a sear extending rearwardly into the chambered tang for coaction with the hammer and trigger, and a yielding buffer located in the rear wall of the chambered tang for engagement by the lever just before the same reaches the limit of its extreme open position after the breech-block has been drawn rearwardly in a curved path into the chambered tang.

18. A breech-block for firearms, having an open slot formed in its lower face, a swinging or pendulous firing-pin adapted to enter the said slot, and formed with a slot, a retracting-pin passing through the said block and the slot in the firing-pin and coacting with the firing-pin slot to cause the firing-pin to be retracted when the same is moved upward into the breech-block slot.

19. The combination with a breech-block having an open slot formed in its under face, of a swinging or pendulous firing-pin entered into the said slot, and formed with a vertically-arranged slot the upper end of which is longitudinally enlarged and the lower end of which is curved forwardly, and a transversely-arranged retracting-pin mounted in the breech-block and extending through the said slot in the firing-pin.

20. The combination of a breech-block for firearms having a longitudinal slot formed in its lower face, of a firing-pin loosely suspended in the said slot and swinging from its forward end as upon a fulcrum, its rear end being free, and a retracting-pin mounted in the said block, and passing through a slot in the firing-pin.

21. The combination with a breech-block for firearms having a longitudinal slot formed in its lower face and extending nearly to its forward end, of a swinging or pendulous firing-pin having its extreme forward end inserted into a passage formed in the extreme forward end of the block and swinging upon its said forward end as upon a fulcrum, and a retracting-pin which passes through the firing-pin slot.

22. The combination with a breech-block having a longitudinal slot formed in its lower face, of a firing-pin adapted to enter the said slot and formed with a vertically-arranged slot having its upper end longitudinally elongated and its lower portion forwardly curved, and a retracting-pin passing through the block and engaging with the rear wall of the curved portion of the slot for retracting the firing-pin as the same is lifted into the breech-block slot.

23. In a firearm, the combination with a breech-block, of a swinging or pendulous vertically-movable firing-pin located in the lower face thereof, and a box-magazine with which the firing-pin engages and by which it is lifted from its pendulous position into the said breech-block.

24. In a firearm, the combination with the receiver thereof, of a horizontally-arranged, vertically-rocking cartridge-guide adapted to swing downward and outward under pressure from above, and formed to prevent its outward movement when it is lifted under pres-

sure from below, whereby it permits cartridges to be forced downward past it, but prevents them from being forced upward past it.

25. In a firearm, the combination with a receiver, having a longitudinal recess formed in one of its side walls, of a spring-actuated cartridge-guide located in the said recess, and having a rocking movement therein so as to rock downward and outward under downward pressure, and to be blocked against outward movement under upward pressure.

26. In a firearm, the combination with a receiver having a horizontally-arranged recess formed in one of its side walls, of a cartridge-guide located in the said recess, a spring exerting a constant effort to push the said guide inward, and a rocking pin mounted in the side wall of the receiver and entering the guide which it supports, the opening receiving the pin being larger in diameter than the pin, whereby the pin and guide are free to rock within the limit set by the size of the opening through which the pin passes.

27. In a firearm, the combination with the receiver thereof, of a horizontally-arranged fixed cartridge-guide located therein, a horizontally-arranged rocking cartridge-guide located opposite the said fixed guide and retiring to permit cartridges to be forced downward below it, but blocking to prevent them from being lifted upward by it.

28. The combination with a box-magazine, of a carrier located therein and coacting at its rear and forward ends with the rear and forward ends thereof, a two-armed sheet-metal carrier-spring, the loop between the arms thereof extending forward and being connected with the box-magazine at the lower corner of the forward end thereof, and the rear end of the upper arm of the spring being engaged with the said carrier, and the rear end of the lower arm of the spring being engaged with a portion of the box-magazine.

29. In a firearm, the combination with a box-magazine having its bottom open, of a cover adapted at its forward end to be connected with the forward lower corner of the said box-magazine, and provided at its rear end with an undercut coupling-stud entering an undercut coupling-recess formed in the rear end of the lower portion of the said box-magazine, a carrier located within the said box-magazine and coacting with the rear and forward end walls thereof, and a sheet-metal carrier-spring comprising a forwardly-extending loop and rearwardly-extending upper and lower arms, the extreme forward end of the loop being connected with the box-magazine at the lower corner of the forward end thereof, and the rear end of the upper arm of the spring being engaged with the carrier, and the rear end of the lower arm of the spring being notched and engaged with the said undercut coupling-stud.

30. In a box-magazine, the combination with a frame comprising a receiver and a chambered tang, of a breech-block, an operating or finger lever, a link connecting the rear end of the block with the forward end of the lever by means of which the block is moved back and forth in a segmental path, and also up and down for locking it and unlocking it; a hammer and a trigger carried by the said lever, a sear extending rearwardly into the chambered tang in position to be engaged by the hammer when the lever is being swung into its closed position, whereby the hammer is cocked and the trigger engaged with the sear; and a box-magazine containing a spring-actuated, vertically-movable cradle or carrier, and a removable cover for the box-magazine.

31. In a magazine-firearm, the combination with a breech-block, of an operating-lever, a link connecting the rear end of the breech-block with the inner end of the lever, a hammer, a hammer-spring, a hammer-guide pin entering the hammer and having the spring mounted upon it, and a trigger, the said hammer, spring, pin and trigger being carried by the lever, and all of the said parts being organized together for insertion into and removal from the gun as one piece.

32. In a firearm, the combination with a breech-block, of an operating-lever, the inner end whereof passes under the rear end of the breech-block for supporting the same in its closed and locked position, an operating-link uniting the upper portion of the rear end of the said block and extreme forward end of the lever, and acting as the medium for lifting the block into its locked position and drawing it down into its unlocked position; and means for supporting the inner end of the lever at the same time that the same is supporting the rear end of the breech-block in its closed and locked position.

33. In a firearm, the combination with a breech-block, of an operating-lever, the inner end whereof passes under the rear end of the block for supporting the same in its closed and locked position, and a box-magazine supporting the inner end of the lever when the same is supporting the rear end of the breech-block.

34. In a firearm, the combination with a breech-block, of a firing-pin mounted therein, an operating-lever by means of which the breech-block is operated, a reciprocating hammer mounted in the said lever, having its path of reciprocation out of line with the firing-pin and having its front or striking face at an angle with its said path of reciprocation, and means for preventing the hammer from glancing upward when it strikes the said pin or other object located at the limit of its forward excursion.

35. In a firearm, the combination with a breech-block, of a firing-pin mounted therein, an operating-lever by means of which the breech-block is operated, a reciprocating hammer mounted in the said lever, having

its path of reciprocation out of line with the firing-pin, and having its front or striking face at an angle with its said path of reciprocation, and a fixed pin projecting rearward and arranged to be engaged by the hammer just before the same reaches the limit of its forward excursion for preventing it from glancing upward and jarring the lever open.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

JOHN M. BROWNING.

Witnesses:
FRED C. EARLE,
GEO. D. SEYMOUR.