(No Model.) 3 Sheets—Sheet 1.

J. M. & M. S. BROWNING.

MAGAZINE FIRE ARM.

No. 306,577. Patented Oct. 14, 1884.

Fig. 1

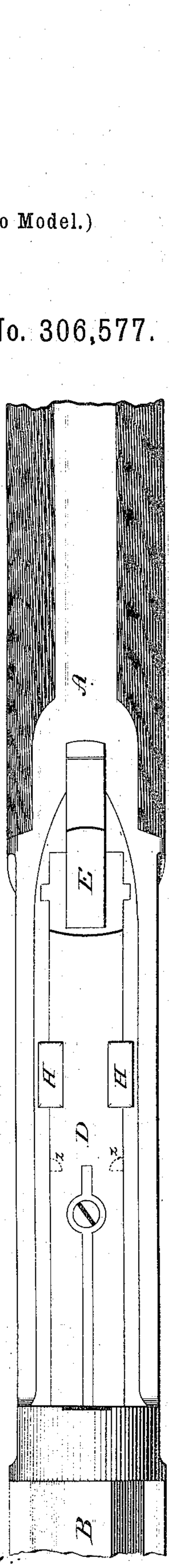


Fig. 3

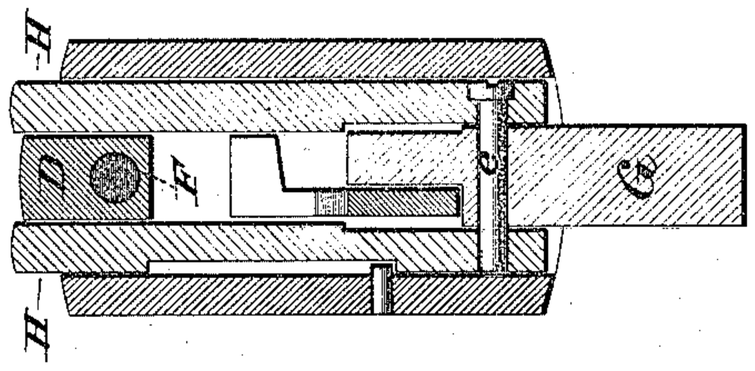
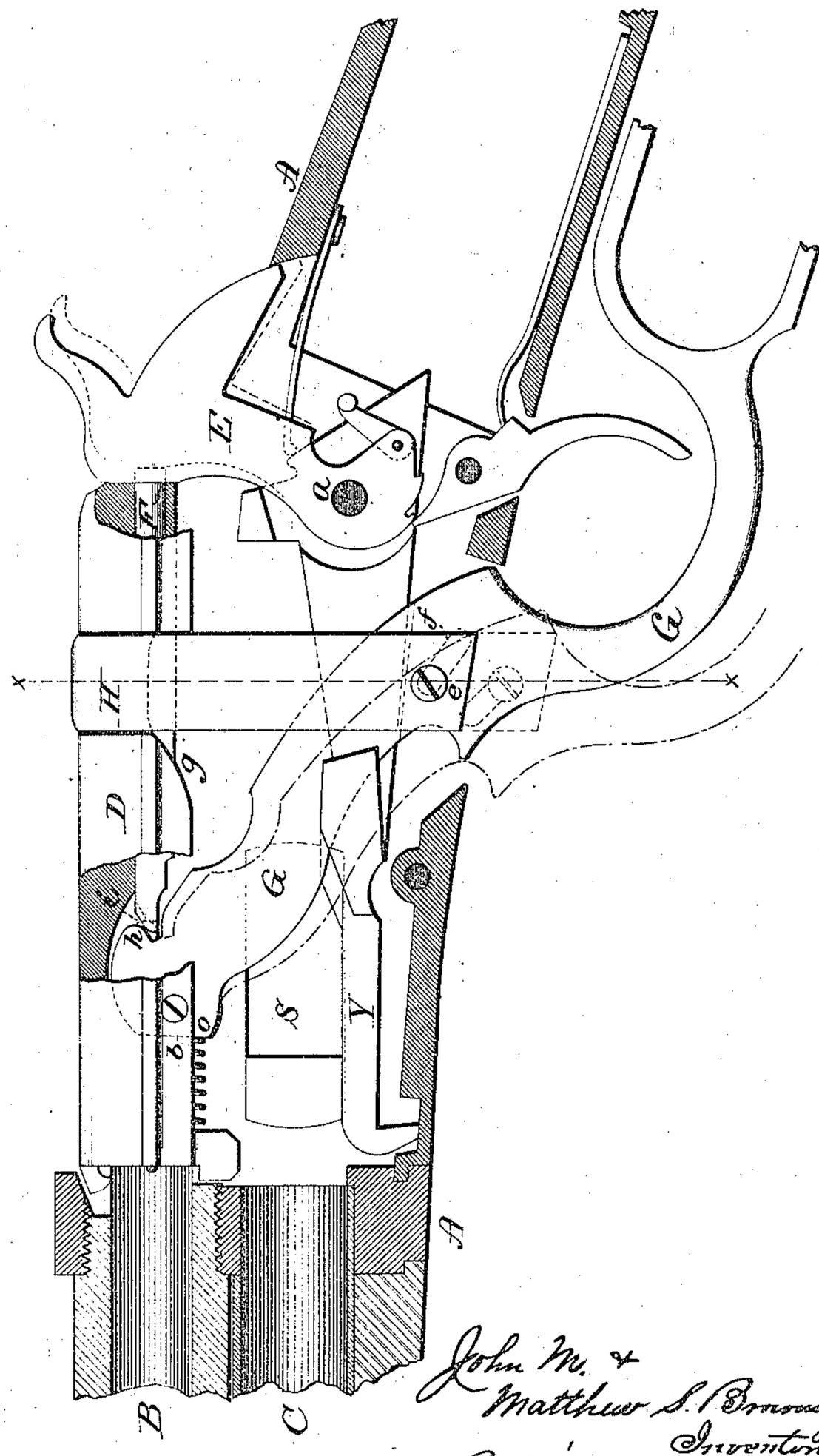


Fig. 2



Witnesses.

C. F. Thurnway

Wm. C. Edle

John M. & Matthew S. Browning Inventors.

By atty.

Wm. C. Ende

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J. M. & M. S. BROWNING.

MAGAZINE FIRE ARM.

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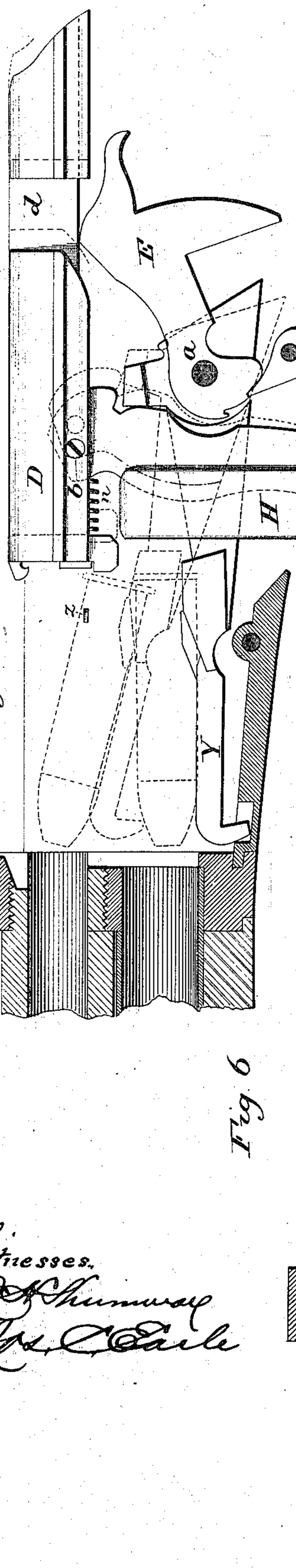
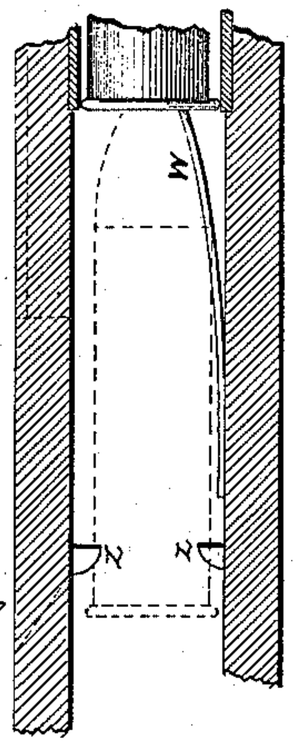
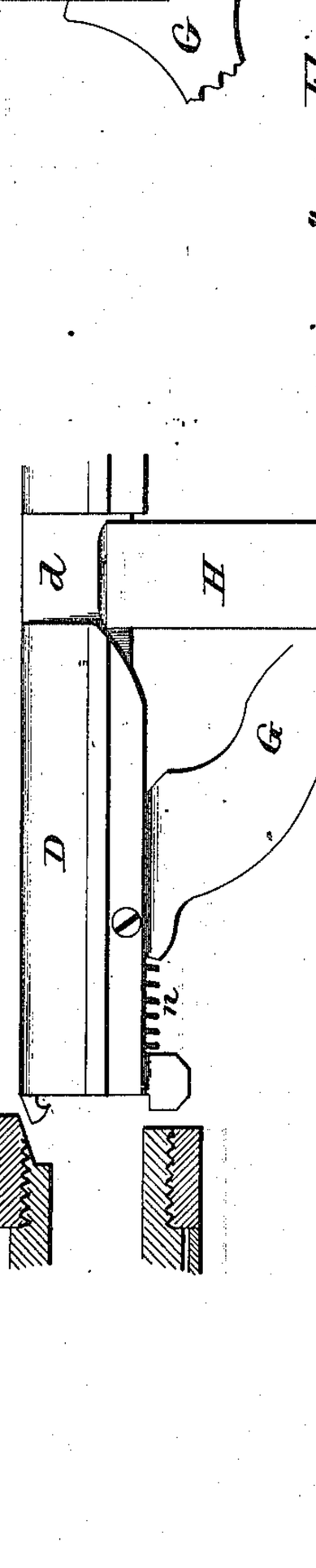
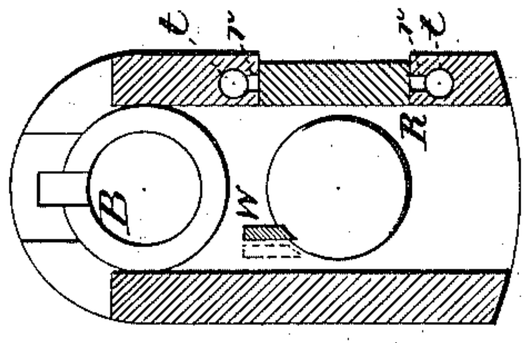
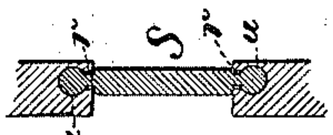
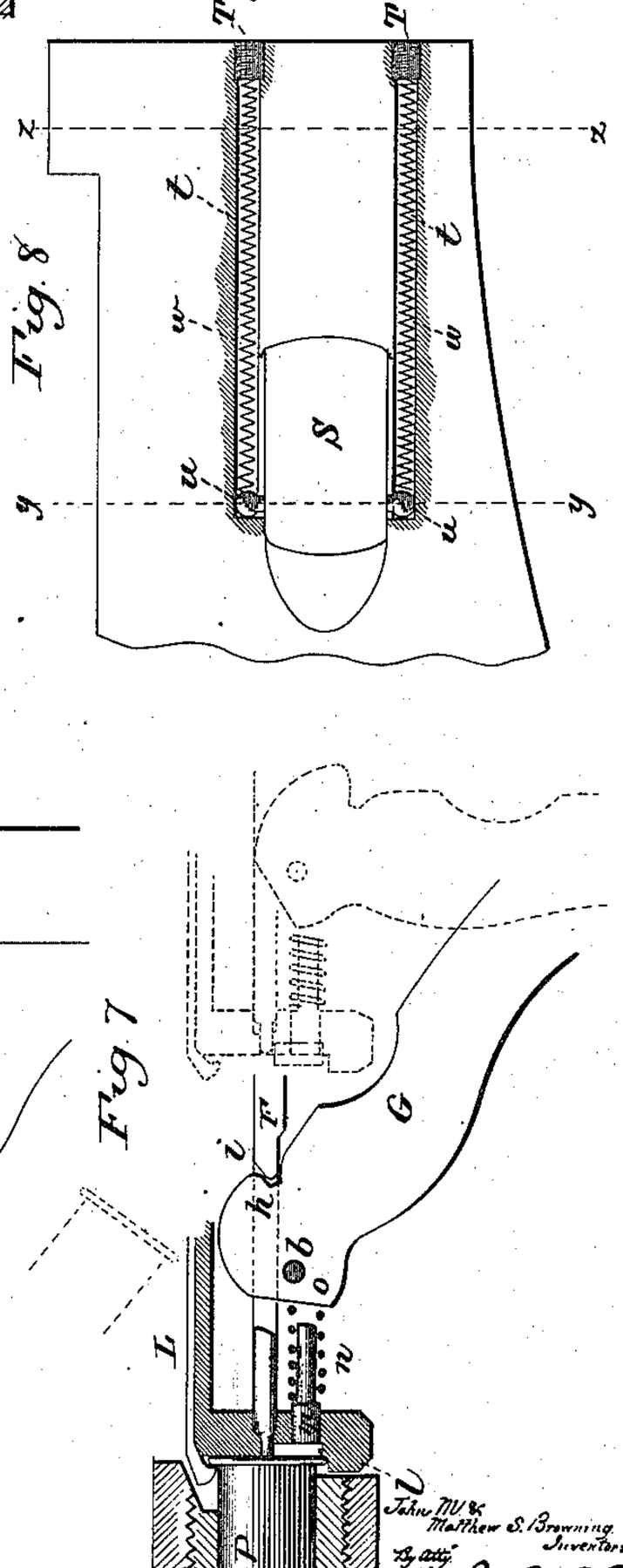












Witnesses.
C. Shumway
Wm. C. Earle

John M. & Matthew S. Browning. Inventors.
By attys.
C. Shumway & Co.

(No Model.) 3 Sheets—Sheet 3.

J. M. & M. S. BROWNING.

MAGAZINE FIRE ARM.

No. 306,577. Patented Oct. 14, 1884.

Fig. 12

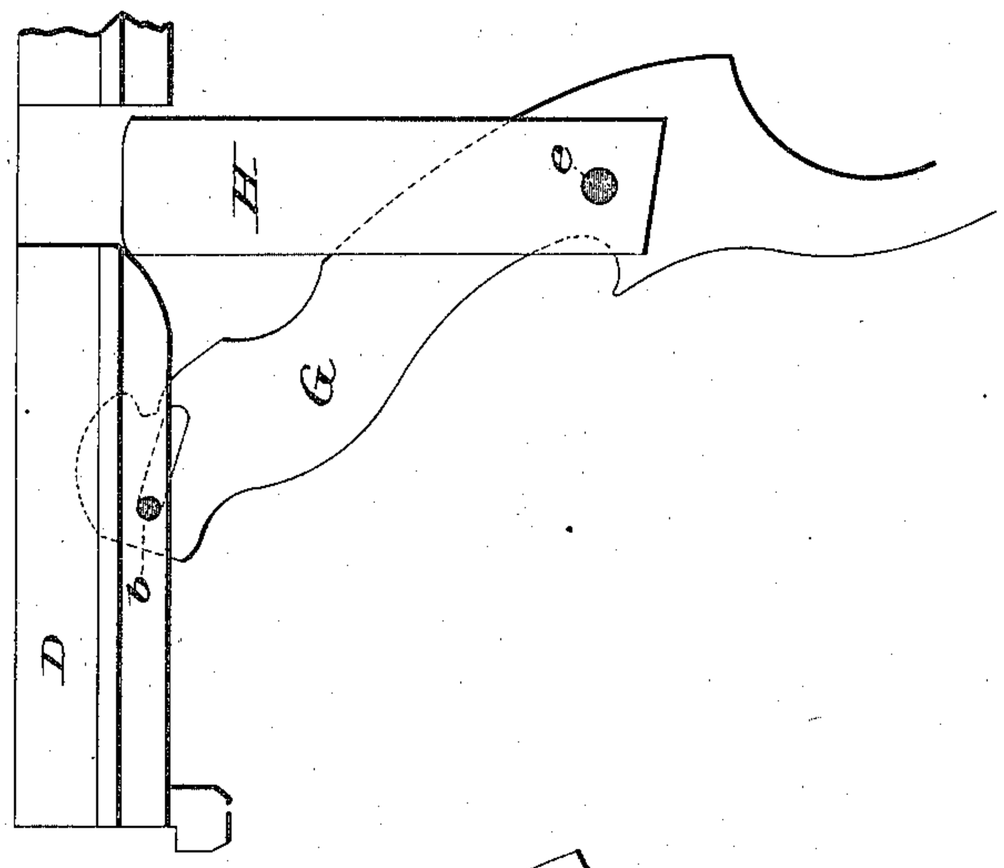


Fig. 11

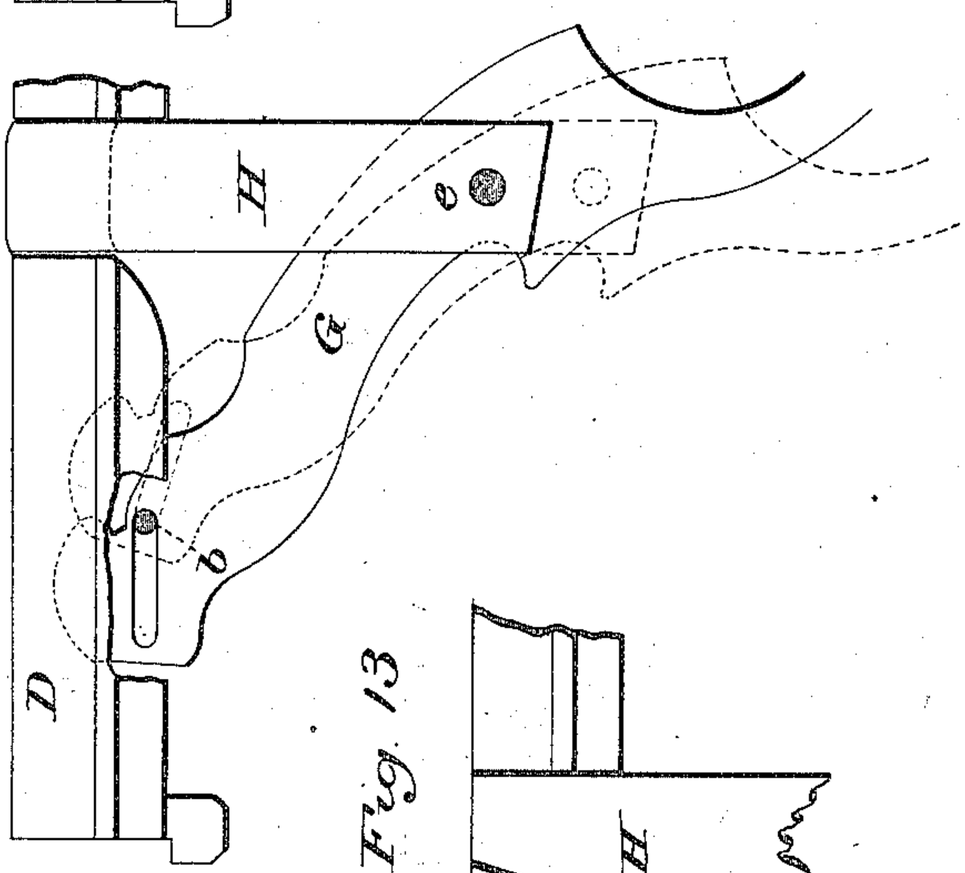
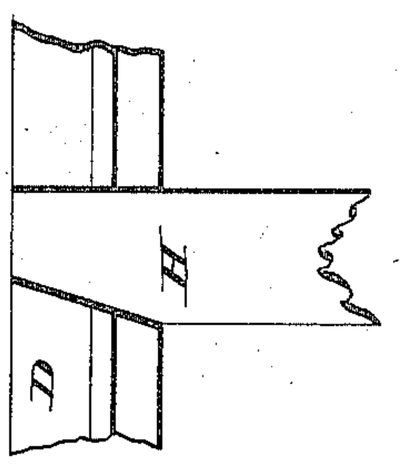


Fig. 13



Witnesses.
J. R. Shumway
Wm. C. Earle

John M.
and Matthew S. Browning
Inventors.
By atty
Wm. C. Earle

UNITED STATES PATENT OFFICE.

JOHN M. BROWNING AND MATTHEW S. BROWNING, OF OGDEN, UTAH TERRITORY, ASSIGNORS TO THE WINCHESTER REPEATING ARMS COMPANY, OF NEW HAVEN, CONNECTICUT.

MAGAZINE FIRE-ARM.

SPECIFICATION forming part of Letters Patent No. 306,577, dated October 14, 1884.

Application filed May 26, 1884. (No model.)

To all whom it may concern:

Be it known that we, JOHN M. BROWNING and MATTHEW S. BROWNING, of Ogden, in the county of Weber, Utah Territory, have invented a new Improvement in Magazine Fire-Arms; and we do hereby declare the following, when taken in connection with 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, a top view of that portion of the arm which embodies our invention; Fig. 2, a longitudinal sectional side view of the same, showing the parts in their closed or normal position; Fig. 3, a vertical section on line *x x* of Fig. 2; Fig. 4, a sectional side view showing the parts as in position of the open breech; Fig. 5, a horizontal section through the receiver, showing the spring W with the inwardly-projecting lugs Z Z; Fig. 6, a sectional side view illustrating the closing movement of the breech-piece; Fig. 7, a longitudinal section through the breech-piece, showing the lever, its action upon the firing-pin and the ejector; Fig. 8, a sectional side view of the receiver, showing the arrangement of the slide in closing the magazine-opening; Fig. 9, a vertical central section on line *y y;* Fig. 10, a vertical central section on line *z z*, looking toward the barrel and magazine, and also showing the relation of the spring W to the magazine; Figs. 11, 12, and 13, modifications.

This invention relates to an improvement in that class of breech-loading fire-arms in which the breech-piece is arranged to be moved back and forth in an axial line with the barrel and operated by a lever in connection therewith, which extends below the receiver to form the trigger-guard, adapted specially to magazine fire-arms, but applicable to single breech-loaders, the object of the invention being principally to make a dead-lock for the breech-piece when in its closed position; and the invention consists in the construction, as hereinafter described, and more particularly recited in the claims.

A is the frame of receiver, of usual construction; B, the barrel; C, the magazine in their usual relation to each other and to the receiver; D, the breech-piece, arranged to be moved longitudinally from the rear end of the barrel to open and toward it to close the breech; E, the hammer, hung upon a pivot, *a*, at the rear of the breech-piece, and so as to strike the firing-pin F, which is arranged longitudinally through the breech-piece in substantially the usual manner; G, the trigger-guard lever which forms the trigger-guard, and also serves as a means for operating the mechanism of the arm. It is hung to the breech-piece upon a pivot, *b*, near the forward end. From that point the lever extends downward and rearward through an opening in the bottom of the receiver. H H are two bolts arranged in vertical guides in the receiver, near its rear end, and so as to be moved up and down in the said guides. Near the rear end of the breech-piece D, and upon opposite sides, are recesses *d*, which, when the breech-piece is in its closed position, correspond, respectively, to the position of the vertical bolts H H, and as seen in Fig. 1, so that while the bolts are guided in vertical movement by the receiver they interlock with the breech-piece when in its closed position. These bolts extend downward, and to their lower end the lever G is hung by a pivot, *e*, as seen in Fig. 3. This pivot extends through a slot, *f*, in the lever G, the slot, as seen in Fig. 2, extending from the pivot rearward and downward when the parts are in the closed position. To open the breech-piece it is therefore necessary to first withdraw the bolts H. To do this the lever G is turned downward, swinging upon its pivot *b* in the breech-piece, as indicated in broken lines, Fig. 2. In this movement the bolts H are drawn downward, the slot *f* in the lever working over the pivot *e* until the rear end of that slot is reached, as also seen in broken lines, Fig. 2. At this time the upper ends of the bolts have been drawn downward from their supporting position in the breech-piece, as seen in Fig. 2, but have not as yet passed entirely from or below the breech-piece. The forward side of the recesses in the breech-piece from the point where the end of the bolt

now stands are inclined forward, as seen at *g*, Fig. 2. Continuing the downward movement of the lever G from the position seen in broken lines, Fig. 2, the bolts will continue their downward vertical movement; but at the same time the breech-piece, because of the inclines *g*, may pass over the ends of the bolts H to the extreme rear position, as seen in Fig. 4, which is the extreme open position of the breech-piece. In this open position it will be observed that the slot *f* in the lever stands nearly in a vertical position.

To return or close the breech-piece, the lever G is returned, swinging upon the pivot *e*. The breech-piece will move forward without movement of the bolts until it arrives at the position seen in Fig. 6, when the rear end of the slot *f* comes against the pivot *e*. At this time the breech-piece is near, but has not quite reached, its closed position. From this point the bolts must begin their ascent, and in such ascent they ride upon the incline *g* from the position seen in Fig. 6 until the breech-piece is completely closed. Then the slot *f* acts like a cam upon the pivot *e* to raise the bolts into their extreme locked position, as seen in Fig. 2, at which time the lever G has arrived at its place of rest.

To withdraw the firing-pin and hold it so as to prevent possible accident, the upper end of the lever G in rear of its pivot is constructed with a cam, *h*, which stands in a recess in the firing-pin and overhangs a corresponding inclined shoulder on the firing-pin, as seen in Fig. 7, but which, when the breech-piece is in its closed and locked position, permits the firing-pin to be moved into its extreme forward or firing position under the blow of the hammer; but as the lever G is turned in its first movement to draw down the bolts H, and before the breech-piece commences its rear movement, the cam *h* acts upon the shoulder *i* on the firing-pin and throws it rearward, as indicated in broken lines, Fig. 2. Because of arranging the cam on the lever in rear of its pivot, it will be observed that the movement of the firing-pin is produced by the downward movement of the cam, and through a very small space, and because of this cam action of the lever the movement of the firing-pin is produced during the short portion of the movement of the lever in which the bolts are withdrawn. The rear end of the firing-pin, bearing against the hammer, imparts to the hammer a rear movement (also indicated in broken lines) in advance of the breech-piece, and so that the firing-pin becomes directly the instrument by which the hammer is thrown backward to its cocked position, and after it arrives at that cocked position, as seen in Fig. 4, then the breech-piece passes freely over it, the under side of the breech-piece being recessed for this purpose, and as seen in Figs. 2 and 4. The head of the lever retains a constant bearing against the firing-pin from the time it is thrown rearward until the breech-piece is returned to its closed position, and does not permit the forward movement of the firing-pin until the bolts have been raised into their locked position, as seen in Fig. 2; hence it is impossible for the firing-pin to strike the primer under the blow of the hammer or otherwise until the breech-piece is completely locked and all the parts in proper condition for firing.

The breech-piece is provided with the usual spring extractor-hook, L, above the firing-pin, and upon the lower side of the firing-pin is the usual shoulder, *l*, upon which the flange of the cartridge will rest, as seen in Fig. 7. *m* is the ejector, which is arranged at the forward end of the firing-pin, and is in the form of a spindle parallel with the firing-pin. Around the spindle is a helical or other suitable spring, *n*. This spring extends from a a shoulder near the forward end of the ejector rearward toward the head of the lever G, and so that when the parts are in their closed position the spring is relaxed. The head of the lever G forward of the pivot forms a cam, *o*, which bears against the spring *n*, and so that if the forward movement of the ejector be resisted as the lever G is turned the spring will be compressed, as seen in broken lines, Fig. 7. The ejector stands flush with the front face of the breech-piece when in its closed position, and against the head of the cartridge P, the cartridge being held by the spring extractor-hook L upon the shoulder *l* below. Now, if in this condition the breech-piece be drawn rearward, the shell retains its position with its head against the front face of the breech-piece during such rear movement by the action of the hook L, and because of the shell standing within the cartridge-chamber in the barrel. During the rear movement of the breech-piece and the cartridge or shell thereto attached the spring *n* is compressed under the action of the cam *o* on the lever G, thereby constantly increasing the bearing of the ejector against the head of the cartridge, until in the rear movement of the breech-piece the forward end of the cartridge escapes from the cartridge-chamber. Then the action of the spring *n* forces the ejector forward, throwing the lower side of the head from the shoulder *l*, the forward end of the shell upward, and so as to eject the shell or cartridge, as the case may be, from the arm. As the movement of the ejector is only produced by the compression of the spring, and not a positive movement from the cam *o*, the ejector N returns as the breech-piece is closed against the head of the cartridge, and whether or not the cam *o* has relieved the spring from its pressure.

The magazine is charged through a side opening, R, in the receiver. This opening is provided with a cover, S, arranged to slide longitudinally in grooves *r*, (see Figs. 9 and 10,) forward to open the receiver for the insertion and rearward to close it. To make the closing automatic, holes *t* are bored into the forward end of the receiver rearward and parallel with

the grooves *r r*, and so that the grooves open into those holes, as seen in Figs. 8, 9, and 10. On the upper and lower side of the slide S is an ear, *u*, which extends into the holes or grooves *t*. These holes form substantially what may be called "grooves," but broader than the grooves *r*—that is to say, the groove in each side of the opening is contracted from the inside outward, and into the enlarged portion from the forward end a helical spring, *w*, is introduced against the ears *u*, and then at the forward end of the receiver a plug, T, is introduced (may be in the form of a screw, as shown,) against that end of the springs, compressing the springs forcibly against the ears *u*, and so that as the slide S is moved forward the springs *w* will be compressed, and so that their reaction, when free, will force the slide to return to its closed position. The slide is moved forward by the insertion of the point of the cartridge pressed against it in the usual manner of charging magazines through a side or similar opening. By this construction the cover-closing springs, as well as the guide for the cover, are entirely within the receiver, and in rear of the front end of it, and so that there is no opening from the receiver into the forearm, as must be the case where the spring of the cover is applied upon a spindle or otherwise forward of the front end of the receiver.

As a latch to hold the cartridges in the magazine, a spring, W, is applied upon the opposite side of the receiver, but above the center of the magazine, as seen in Fig. 10. This spring overhangs the passage from the magazine onto the carrier, and serves also as a continuation of the magazine-tube for the control of the cartridge, and to hold it upon the carrier until it has entirely passed from the magazine, as seen in broken lines, Fig. 5. Before the cartridge has passed entirely from the magazine onto the carrier Y, as seen in broken lines, Fig. 4, the head end has passed beneath lugs Z Z, one on each side the receiver above the carrier, but forward of the front face of the breech-piece in its open position, as seen in Fig. 4, these lugs Z Z indicated in broken lines, Fig. 1. As the carrier ascends, as seen in broken lines, Fig. 4, in the last part of the rear movement of the breech-piece, it raises the cartridge into a position in front of the breech-piece, the point end of the cartridge freely passing the spring W, and when raised the breech-piece is moved forward, forcing the cartridge from the carrier into the chamber, the head passing from under the lugs Z. The spring W and the lugs together serve to prevent the cartridge from being accidentally thrown or removed from the receiver while the breech-piece is open and before the carrier begins to rise, and from that time the lugs Z Z serve to prevent this accidental removal of the cartridge until it be fairly entered into the chamber.

So far as the spring W serves as a latch to retain the cartridge in the magazine, it performs its office substantially as does a similar spring in previous arms. It is thrown out of its latching position in the movement of the parts of the arm, so as to permit the last cartridge in the magazine to start rearward in time to escape therefrom to pass onto the carrier, substantially as in previous arms, and does not require particular description.

While we prefer to make the slot in the lever upon the pivot which connects the bolts to the lever, the slot may be at the pivot in the breech-piece, as seen in Fig. 11. In this case the downward or opening movement of the lever performs its office upon the bolts to give them a downward movement in advance of the breech-piece, the slot at the forward end of the lever riding back upon the pivot *b* in the breech-piece until the forward end of the slot comes in contact with that pivot, which is at the time the bolts have arrived to such a position that the incline on the forward edge of the recess in the breech-piece may pass over their upper ends, and as seen in broken lines, Fig. 11. From that time the breech-piece moves rearward with the lever. In the returning or closing movement the breech-piece is moved forward under the influence of the lever, say, to the position seen in Fig. 12. At that time it is beyond the influence of the lever because of the position of the slot with relation to the pivot *b*. At this time the lever turns upon that pivot *b* and throws the bolts upward. Their noses, striking upon the inclines at the forward side of the recess in the breech-piece, act to force the breech-piece from that point forward into its closed position, and until the bolts can rise into the recesses to their extreme locked position, the essential feature of this part of our invention being a direct connection of the bolts to the lever and the lever to the breech-piece, such connections being made by means of a slot at one pivot or the other, whereby the bolts are thrown into their extreme locked position after the breech-piece is closed.

We have not described the carrier or devices for transferring the cartridges from the magazine to a position in front of the face of the open breech-piece, so that they may be transferred to the barrel in the forward movement of the breech-piece, as this mechanism constitutes no part of this present invention. Any of the numerous devices or carriers for this purpose may be employed.

We have illustrated and prefer two bolts, one upon each side of the breech-piece; but it will be readily seen that one bolt will accomplish the object of the invention.

Instead of making the incline *g* on the breech-piece, it may be made on the front face of the bolt, as seen in Fig. 13, and accomplish the same object, it only being essential to this part of our invention that there shall be an incline in front of the nose of the bolts, whereby they may impart the closing movement to the breech-piece.

While we represent in the illustration the invention as applied to magazine fire-arms, we

do not wish to be understood as limiting it to such arms, as parts are applicable to single breech-loaders.

We do not claim, broadly, a vertically-moving locking-bolt to engage the breech-piece in its closed position, as such, we are aware, is not new; but we are not aware that a vertically-moving locking-bolt has been directly and positively hung to the lever and the lever directly hung to the breech-piece, which construction is the essential feature of this part of our invention.

We claim—

1. In a fire-arm substantially such as described, the combination of the longitudinally-movable breech-piece, the trigger-guard lever extending up into the receiver and forward, hung to the breech-piece, a vertically-movable bolt or bolts arranged in guides in the receiver, the breech-piece constructed with a recess corresponding to said bolt or bolts and with which said bolt or bolts will engage, the said bolts hung by a pivot directly to said lever in rear of and below the connection of the lever with the breech-piece, one of said connections slotted, whereby the descent of the bolts is made during the first part of the movement of said lever and before the breech-piece commences its opening movement, and said bolts raised into their locking position after the breech-piece is closed, substantially as described.

2. In a fire-arm substantially such as described, the combination of a longitudinally-movable breech-piece, the trigger-guard lever extending upward into the receiver and forward, hung to the breech-piece, a bolt or bolts arranged in vertical guides in the receiver and in rear of the point of connection between said lever and the breech-piece, the said bolts hung by a pivot to said lever, the connection at one of the pivots slotted to permit the movement of the bolts with the lever before the breech-piece commences its opening movement, and to return said bolts in advance of the complete closing of the breech-piece, an incline in front of the nose of the bolts, whereby the last part of the closing movement of the breech-piece is made by the ascent of the bolts, substantially as described.

3. In a fire-arm substantially such as described, the combination of a longitudinally-movable breech-piece, the trigger-guard lever extending up into the receiver and forward, hinged directly to the breech-piece, the hinged end of the lever constructed with a cam, *h*, projecting rearward therefrom, the firing-pin F, constructed with a shoulder, *i*, inclining downward and forward corresponding to the cam *h* on the lever, said cam overhanging the said shoulder, substantially as described.

4. In a fire-arm substantially such as described, the combination of the longitudinally-movable bolt D, the trigger-guard lever G, extending up into the receiver and forward, hung to the breech-piece by a pivot, *b*, the vertical bolt or bolts H, hung directly to said lever below and in rear of the pivot *b*, the said lever constructed with a cam, *h*, and the firing-pin constructed with a shoulder, *i*, corresponding to said cam *h*, substantially as and for the purpose described.

5. In a fire-arm substantially such as described, the combination of the longitudinally-movable breech-bolt D, the trigger-guard lever G, extending up into the receiver, hung to the breech-piece, and constructed with a cam, *o*, forward of and below the pivot by which it is hung to the breech-piece, an ejector, *m*, arranged below the firing-pin and parallel therewith, and a spring, *n*, one end resting against said cam *o*, the other end against the ejector, and whereby the movement of said ejector is produced through said spring, substantially as described.

6. In a magazine fire-arm, the receiver, constructed with the opening R to the magazine, the cover S, arranged to move longitudinally in grooves or guides *r* in each edge of the opening in the receiver, the said grooves opening into an enlargement, *t*, and the cover constructed with ears *u* at or near its rear end, extending into said enlargement, with springs *w* arranged in said enlarged parts of the groove, one end supported near the forward end of the receiver as resistance, the other end bearing rearward against the said ears on the cover, substantially as described.

7. In a magazine fire-arm, the combination of the longitudinally-movable breech-piece, a carrier arranged to receive a cartridge from the magazine and raise it to a position between the front face of the open breech-piece and the cartridge-chamber, the spring W, arranged longitudinally in the receiver to overhang the cartridge at the mouth of the magazine, and lugs Z Z on the sides of the receiver, projecting inward above the carrier and forward of the front face of the breech-piece in its open position, substantially as described.

JOHN M. BROWNING.
MATTHEW S. BROWNING.

Witnesses:
ORSON RISER,
D. W. FELSHAW.