

(No Model.)

7 Sheets—Sheet 1.

J. M. & M. S. BROWNING.
MAGAZINE FIRE ARM.

No. 428,887.

Patented May 27, 1890.

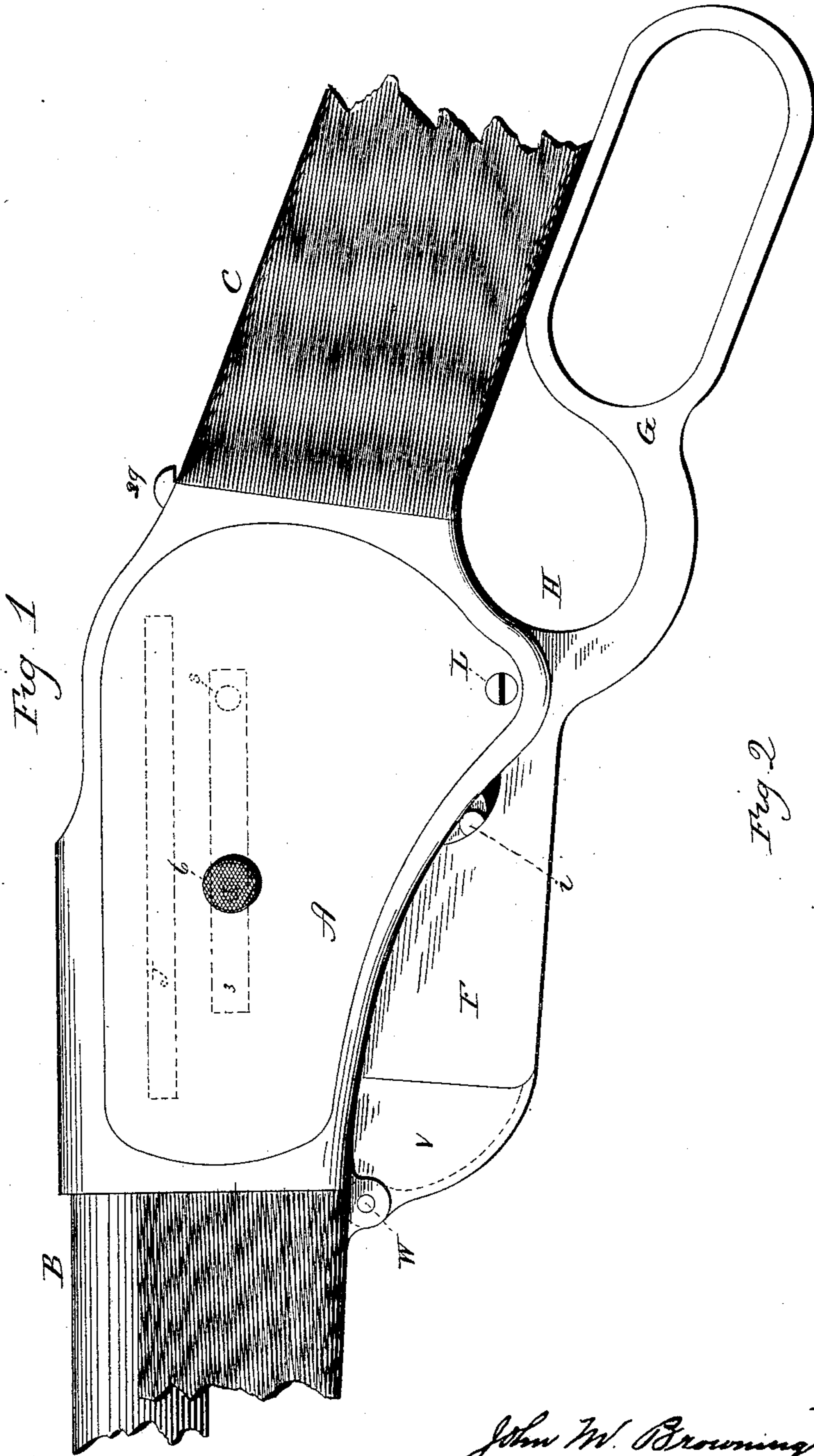


Fig. 1

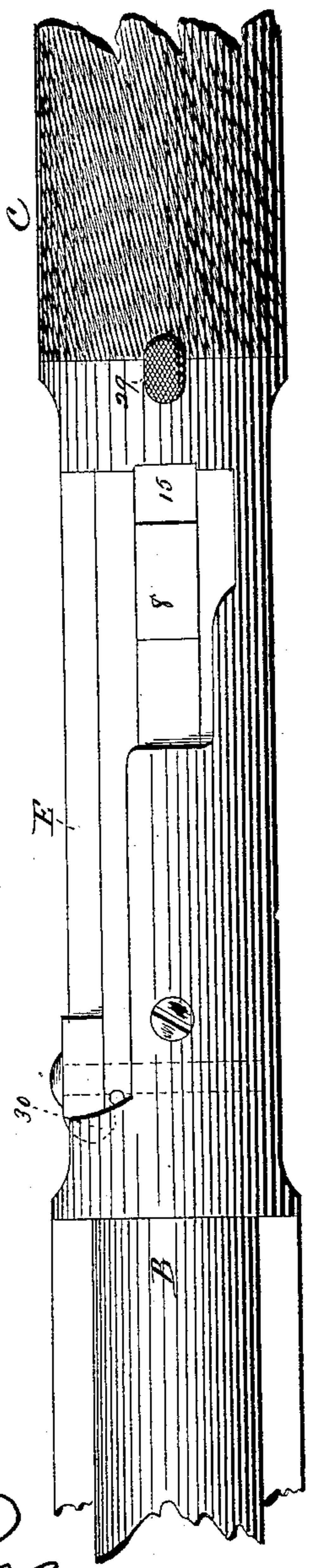


Fig. 2

Witnesses
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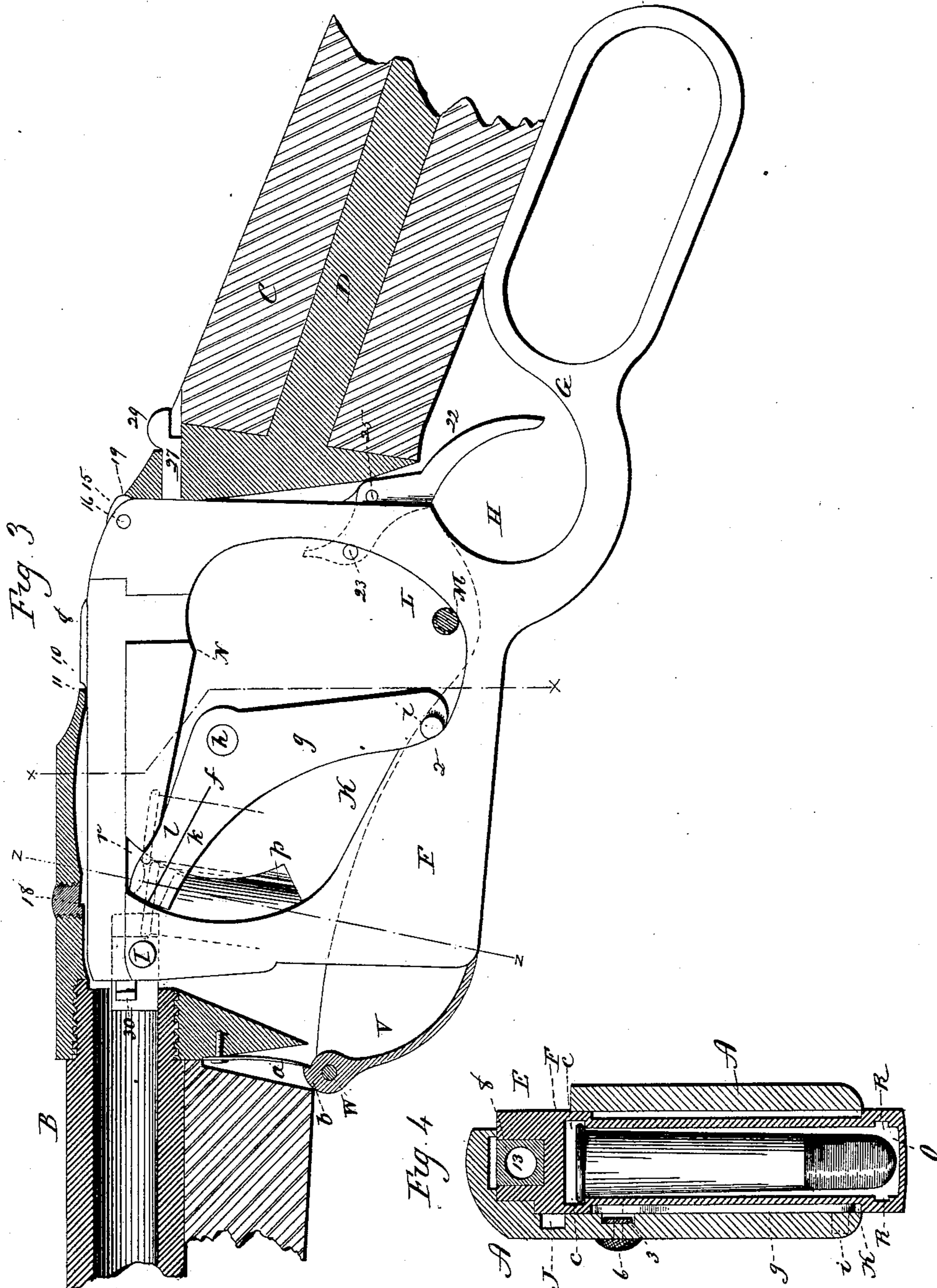
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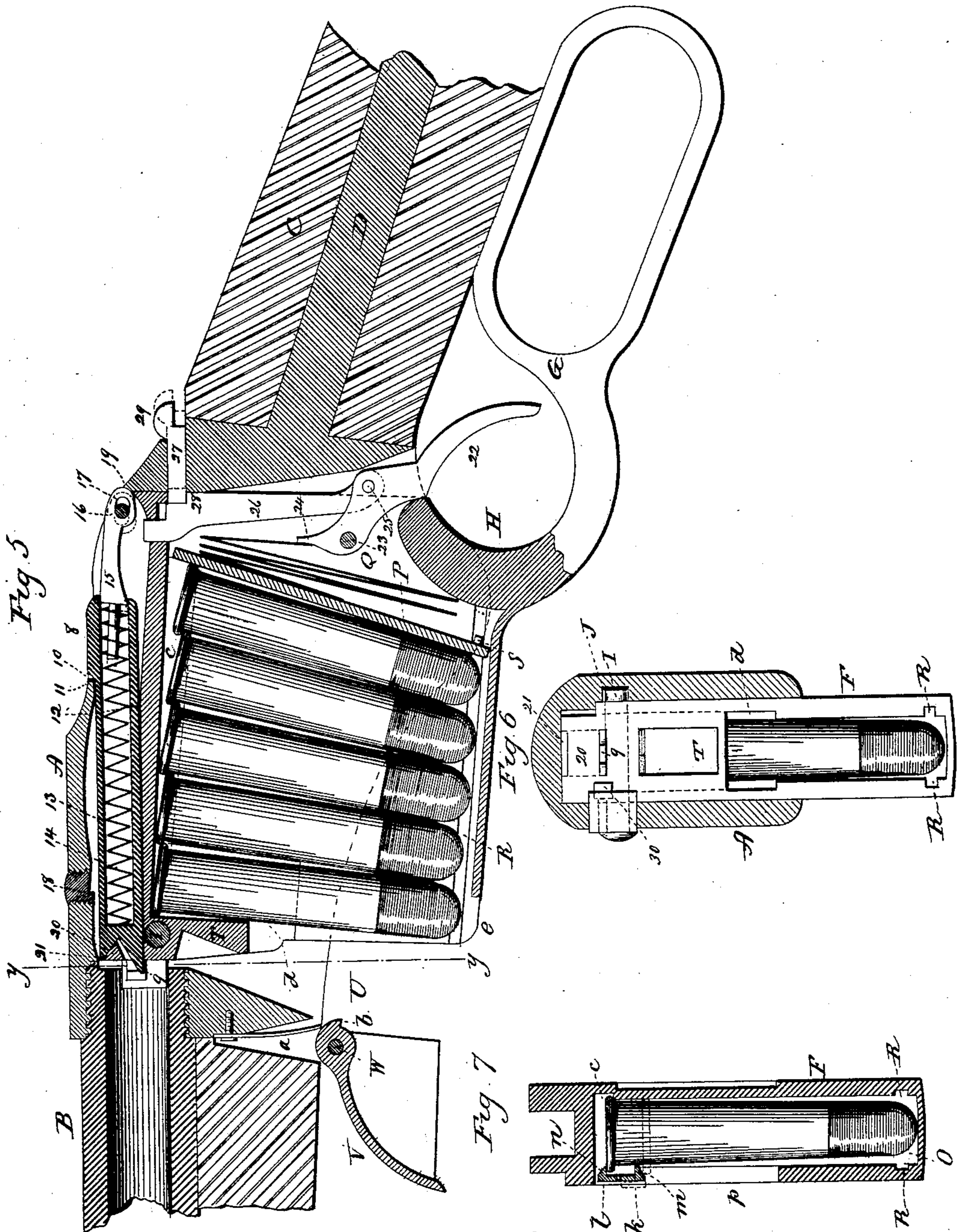
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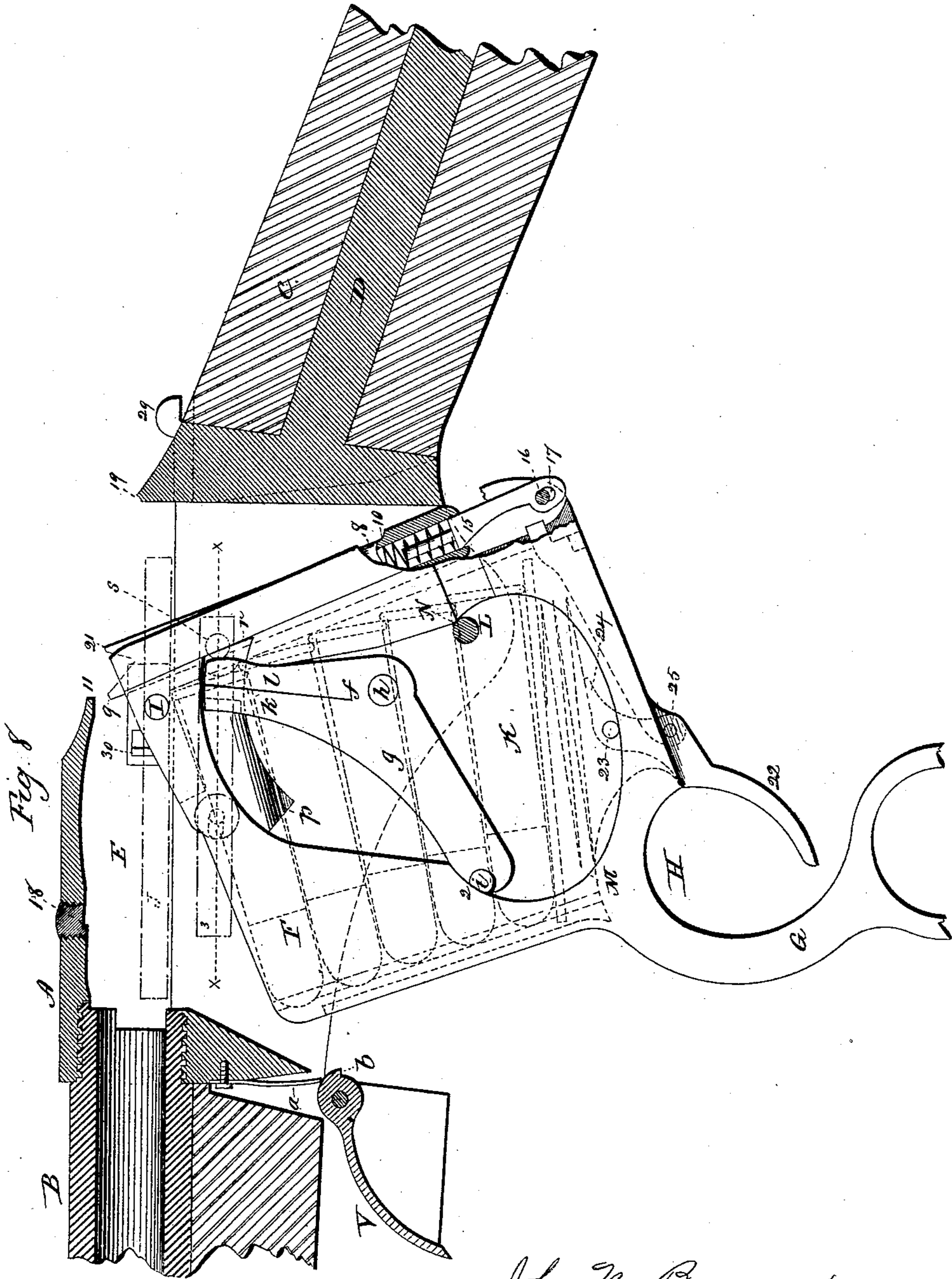
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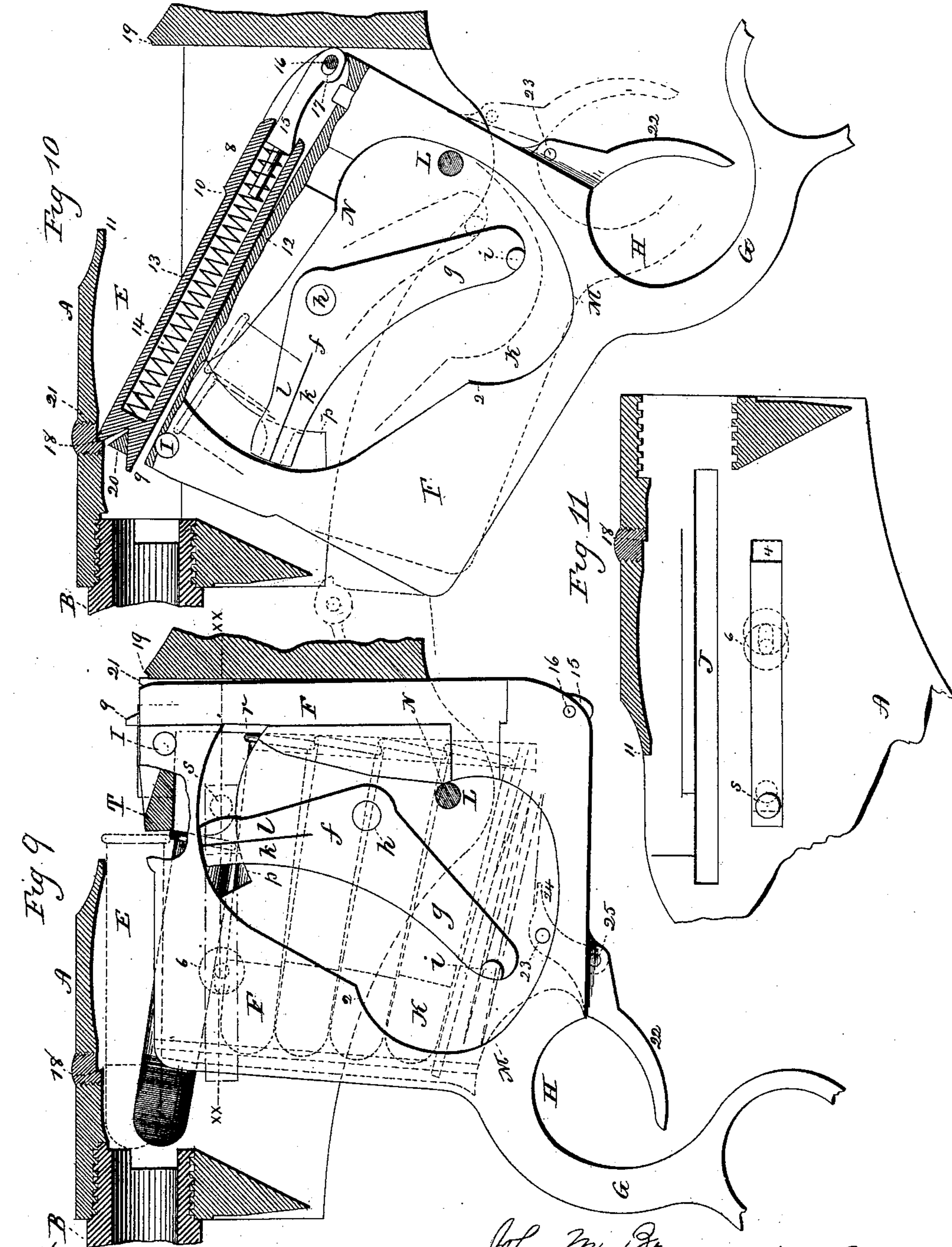
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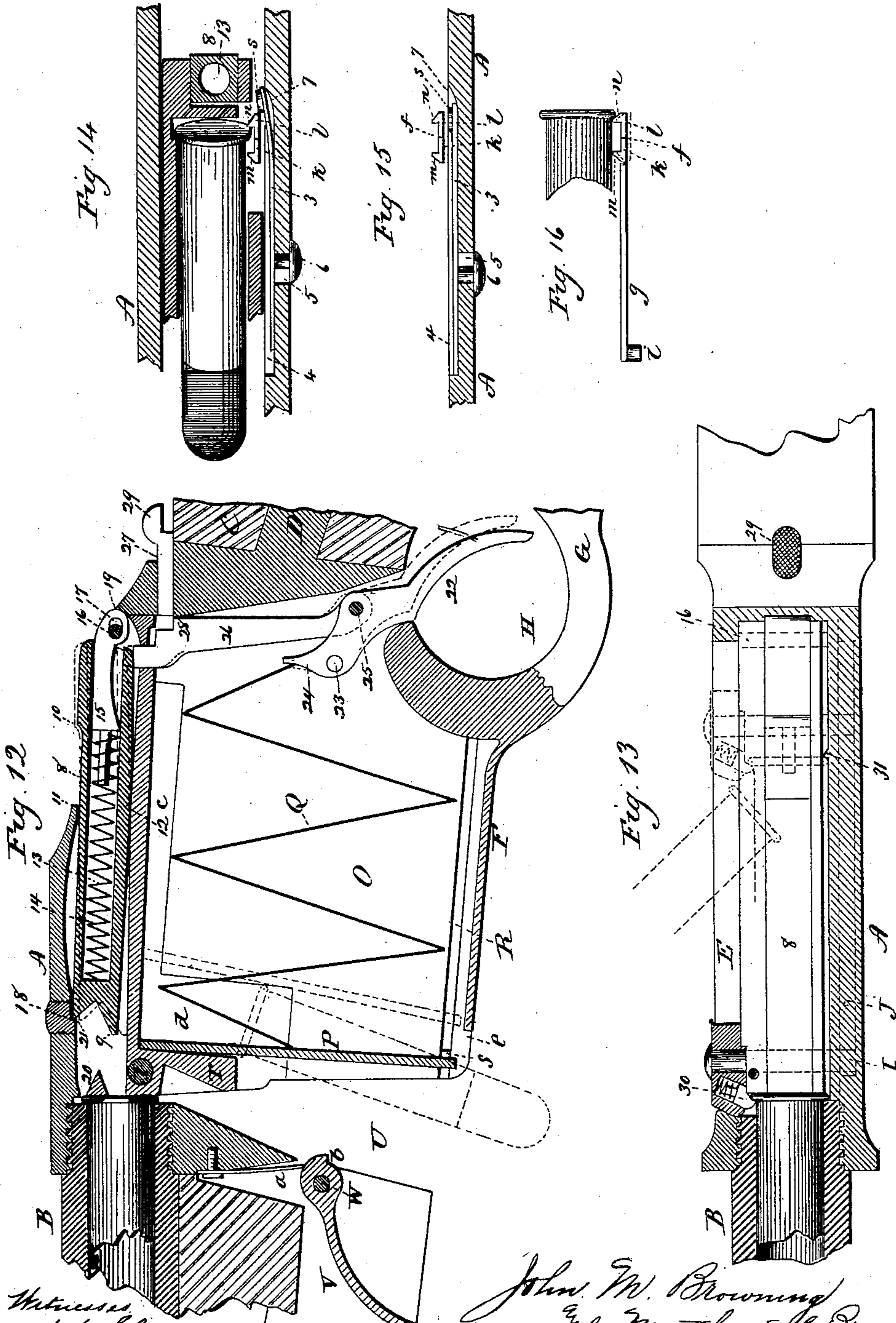
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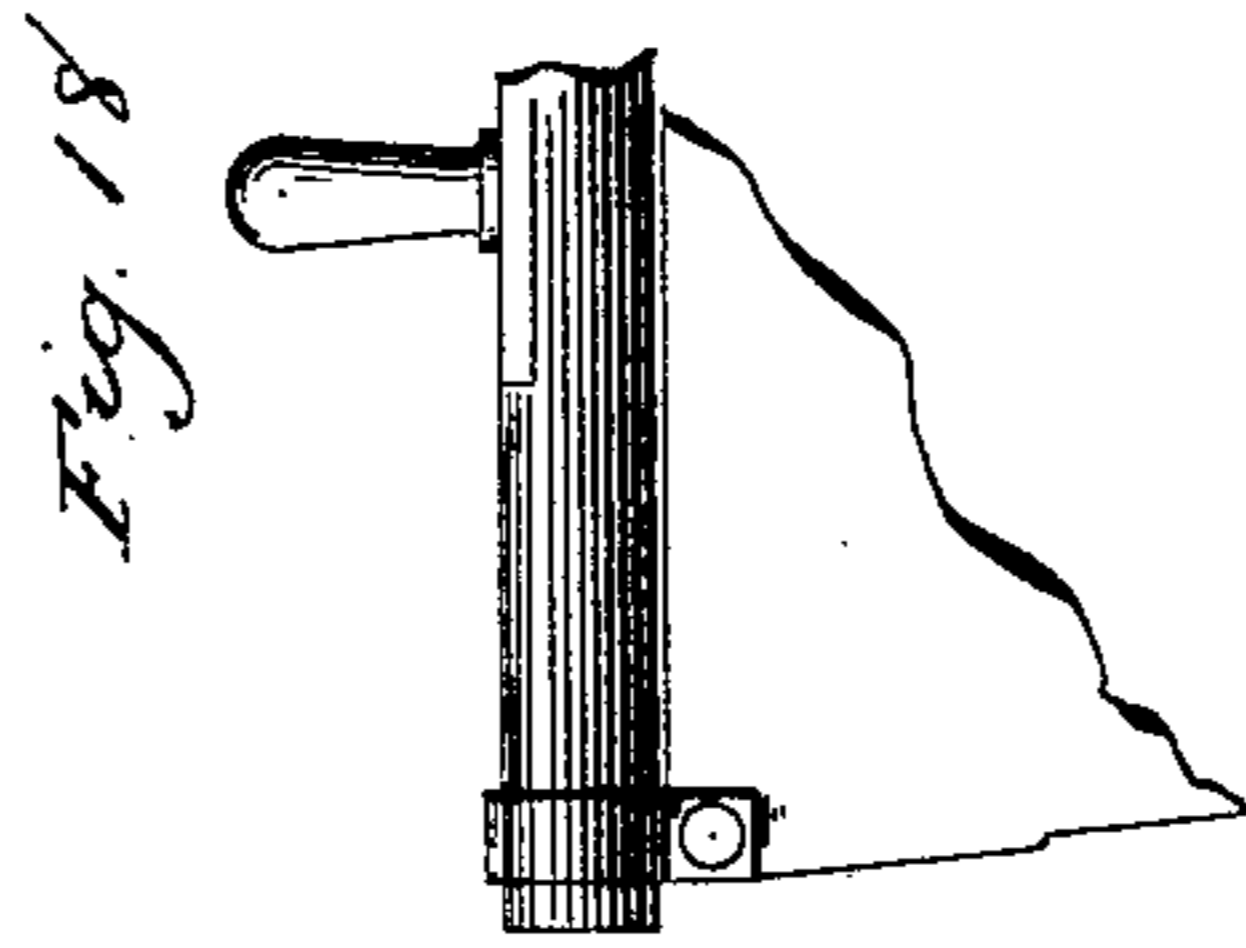
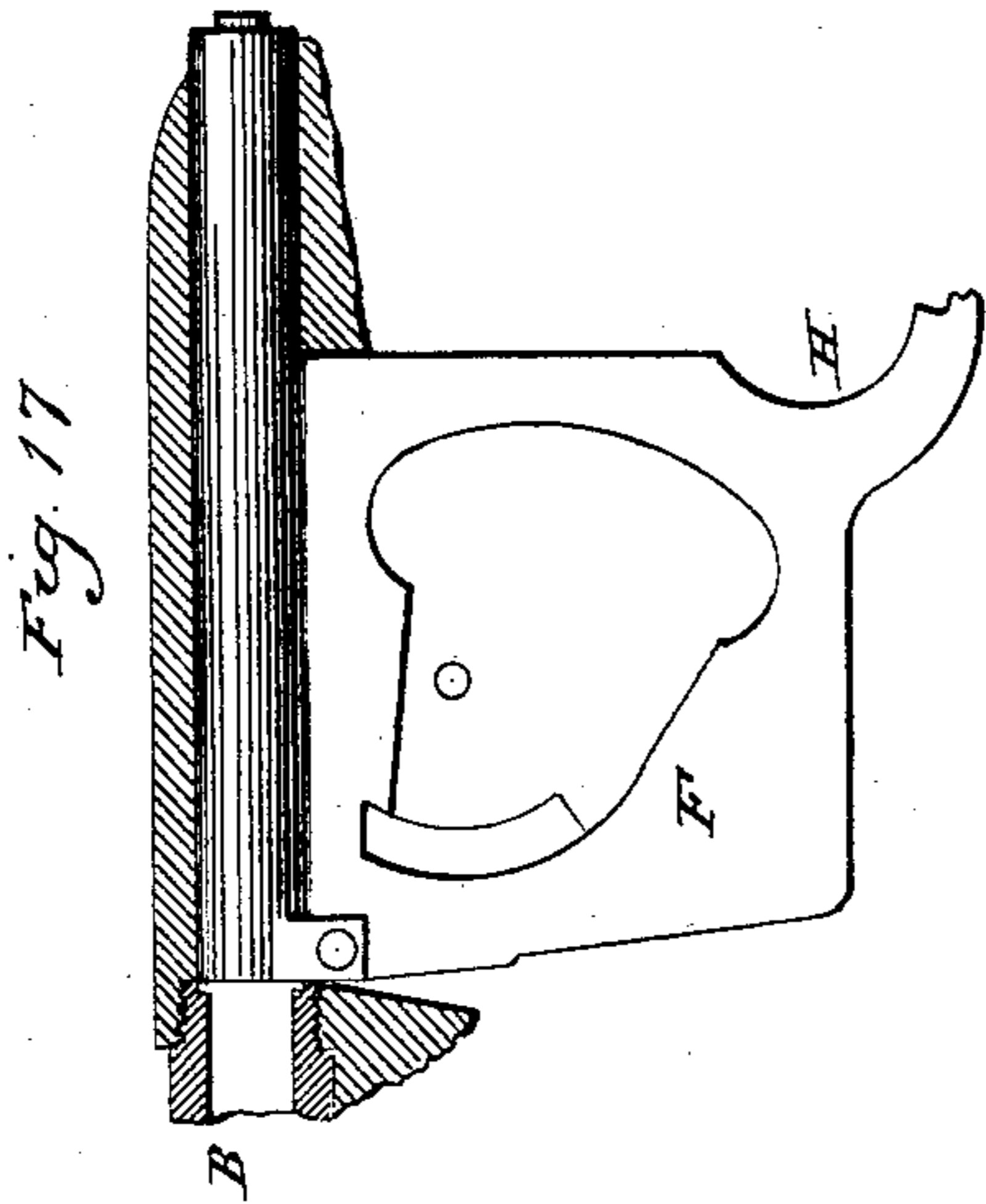
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UNITED STATES PATENT OFFICE.

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. 428,887, dated May 27, 1890.

Application filed November 18, 1889. Serial No. 330,643. (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 and Territory of Utah, have
5 invented a new Magazine Fire-Arm; and we do hereby declare the following, when taken in connection with accompanying drawings and the letters and figures 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,
10 in—

Figure 1, a side view of the arm with the parts in the closed or normal position; Fig.
15 2, a top view of the same; Fig. 3, a longitudinal sectional view with the parts in the closed or normal position, showing the magazine in side view looking from the left; Fig. 4, a vertical central section cutting on line $x x$ of
20 Fig. 3, looking forward; Fig. 5, a longitudinal section cutting centrally through the magazine and breech-piece, with the parts in the normal position except the cover V, which is represented as open; Fig. 6, a vertical central section on line $y y$ of Fig. 5, looking rearward, showing a face or front view of the
25 breech-piece and magazine; Fig. 7, a vertical section cutting on line $z z$ of Fig. 3; Fig. 8, the same view as Fig. 3, but representing the
30 magazine and breech-piece as approaching the extreme open position; Fig. 9, the same as Fig. 8, with the breech-piece in the wide-open position; Fig. 10, the same as Fig. 9, showing the breech-piece and magazine as in
35 the return-movement, the hammer just engaging the cock-notch; Fig. 11, a longitudinal section through a portion of the receiver, showing an inside view looking from the left and representing the stop s , also the longitudinal groove J, in which the magazine-pivot
40 works; Fig. 12, a longitudinal section the same as Fig. 5, showing the parts in the normal position, except that the hammer is in the cocked position; Fig. 13, a horizontal longitudinal section through the receiver, representing a top view of the breech-piece in the closed position; Fig. 14, a longitudinal
45 section through the receiver, cutting on line $x x$ of Fig. 8, representing the arm f of the
50 magazine-lever as just engaging the stop s ;

Fig. 15, the same section through one side of the receiver as that shown in Fig. 14, but representing the stop s as thrown out of the path of the said lever; Fig. 16, a detached view illustrating the operation of the lever f
55 g on the cartridge-head as the magazine is approaching its closed position; Figs. 17 and 18, detached views illustrating modifications.

This invention relates to improvements in magazine fire-arms, the object being to combine with a backward and downward swinging breech-piece a magazine as substantially
60 a part of said breech-piece and so as to swing therewith, and whereby the cartridges normally standing in a vertical position in the
65 magazine will by the opening swinging movement of the breech-piece be brought into a longitudinal position and so as to present the upper cartridge in the magazine into such relation to the open rear end of the barrel that
70 in the return or closing movement of the breech-piece and magazine the said upper cartridge will be forced forward from the magazine into the barrel, and so that the breech-piece when closed will rest against
75 the head of the cartridge so inserted to resist the recoil of explosion, parts of the invention being applicable to single breech-loading fire-arms.

The invention consists in the construction
80 and combination of mechanism fully herein-after described, and particularly recited in the claims.

A represents the receiver, which in general shape and size does not differ materially from
85 other well-known arms. It is constructed with a recess open from the under side upward. To the forward end of the receiver the barrel B is attached and opens into the receiver in the usual manner. To the rear end of the
90 receiver the stock C is secured by means of a tang D or by any of the usual devices. The receiver is constructed partially closed over the recess, as clearly seen in several figures, the opening E for removal of the exploded
95 shell being on one side (represented as the right-hand side) and in line with the barrel, so that an exploded shell or cartridge if it be not exploded may be ejected through the said
100 opening E, as in other arms in which the

ejecting-opening is at the side; but, as will hereinafter appear, the ejecting-opening may be at the top. The said ejecting-opening, as usual in this class of arms, may be employed
 5 for introducing single cartridges directly to the barrel when it is desired to use the arm as a single loader.

F represents the breech-piece, arranged in the receiver, and which in its normal or closed
 10 position closes the rear end of the barrel, as seen in Fig. 3, and so as to support the cartridge in the barrel against recoil, as seen in Fig. 5. The breech-piece extends rearward, and in its closed position rests against the
 15 rear end of the recess in the receiver, as seen in Figs. 3 and 5, so as to be firmly supported at the time of explosion. The breech-piece is of a depth required to contain the magazine, and extends down through the open
 20 bottom of the receiver, and terminates in or is provided with a handle G, which is also preferably adapted to form the trigger-guard H.

The breech-piece is hung in the receiver upon a trunnion I near its top and forward
 25 end. This trunnion rests in a longitudinal groove J, (see Fig. 6,) the said groove being opposite the side or ejecting opening. The said trunnion forms an axis upon which the breech may swing in a vertical plane. The
 30 groove J, in which the trunnion rests, permits the trunnion to slide backward and forward, and so that in the opening movement of the breech-piece it first swings downward at the rear, as seen in Fig. 10, turning on the trun-
 35 nion I as its axis of motion, and, the opening swinging movement continuing, the forward end of the breech-piece slides rearward, guided by the trunnion I in the groove J, until the full-open position is reached, as
 40 seen in Fig. 9, and so that the forward end of the breech-piece in such full-opening movement is brought to the top, as from the position seen in Fig. 3 to that seen in Fig. 9. To make the said rear movement of the breech-
 45 piece positive, one side of the breech-piece is constructed with a recess K, and into which recess a stationary stud L projects from the corresponding inside of the receiver. This stud
 50 is best made as a screw introduced through the side of the receiver, as seen in Fig. 1. The edge of the recess K from the point M to the point N is curved, as seen in Figs. 3, 9, and 10, so as to work as a cam upon the stationary stud L in the opening movement of the
 55 breech-piece, and so that in such opening movement the downward and forward movement of the rear end of the breech-piece will force the forward end to move rearward and at the same time turn upward, as before described,
 60 and as from the position of Fig. 3 to that of Fig. 9. In such opening movement of the breech-piece it works against the rear end of the recess in the receiver, as represented in Fig. 10, which serves to hold the breech-piece
 65 to a bearing against the stud L, and so that when the breech-piece reaches the extreme open position, as seen in Fig. 9, the top of

the breech-piece rests against the vertical rear end of the recess in the receiver. On
 the return of the breech-piece the rear end of
 the recess in the receiver, the stationary stud
 L, and the longitudinal groove J serve to gov-
 ern such return or closing movement, so that
 the breech-piece when fully closed is brought
 again to its normal position, as seen in Fig. 3.
 75

In the opening and closing movement of the breech-piece, as described, the operator grasps the lever G and gives to it a downward and forward movement to open the breech,
 and a return movement to close the breech,
 80 substantially as in other arms in which the mechanism of the arm is operated by the trigger-guard lever.

The breech-piece is constructed with a chamber O, opening from its forward end
 85 (see Fig. 12) the depth of the chamber from top to bottom, corresponding substantially to the length of the cartridges to be employed in the arm, and the length of the chamber
 from front to rear is as great as it conven-
 90 iently may be made. This chamber forms the magazine to contain the cartridges used in the arm, as seen in Fig. 5.

P represents the follower in the magazine, and is arranged to move freely backward and
 95 forward, as from the position in Fig. 12 to that seen in Fig. 5 and return.

Within the magazine is a suitable spring Q, supported at its rear end as a resistance,
 its forward end yieldingly bearing against
 100 the follower, as seen in Fig. 12, the tendency of the spring being to force the follower forward.

On each side the magazine-chamber and near the bottom is a longitudinal groove R,
 105 (see Figs. 7 and 12,) in which corresponding trunnion-like projections S on the follower run, and which, while preventing displacement of the follower, permit a limited rocking
 movement of the follower, as indicated by
 110 the broken lines, Fig. 12, and so that the follower may adapt itself to the varying planes required for it to properly bear upon the column of cartridges in the magazine, as indicated in Fig. 5.
 115

The upper part of the forward end of the magazine-chamber is closed to form an abutment T, against which the follower P will
 bear when in its extreme forward position, as
 seen in Fig. 12, the open space below the
 120 abutment T leaving the follower exposed.

The forward end of the recess in the receiver extends beyond the forward end of the
 magazine, so as to leave an opening U into
 the said recess from the under side and for-
 ward of the magazine, as seen in Figs. 5 and
 12. This opening or space is required to per-
 mit the lower forward end of the magazine
 portion of the breech-piece to advance in the
 opening movement, as seen in Figs. 8 and 10,
 130 and also permits the charging of the magazine when the parts are in the closed position, as represented in broken lines, Fig. 12. To close this otherwise open space, a cover V is

hinged to the receiver, as at W, and so as to swing forward from the position seen in Fig. 3 to that seen in Fig. 12 to open said space for the insertion of cartridges into the magazine. The said cover V is provided with a spring *a*, which bears against a shoulder *b* on the cover when in the closed position, as seen in Fig. 3, and so as to hold the cover in such closed position, but so as to permit it to yield to the opening and closing movement of the breech-piece and automatically follow the breech-piece in such opening and closing movements, as indicated by broken lines, Fig. 10; but when the cover is thrown wide open, as seen in Fig. 12, for the introduction of cartridges to the magazine, then the spring *a* escapes from the shoulder *b* and rides upon the periphery of the hub of the cover, and so as to operate to hold the cover in such wide-open position, in order that it may not obstruct the charging-passage into the magazine.

The width of the magazine-chamber corresponds substantially to the diameter of the cartridges under the heads, and as seen in Figs. 4 and 12; but on each side and near the top of the chamber longitudinal grooves *c* are formed, into which the heads of the cartridges may pass, as seen in Figs. 4 and 5, and so that the cartridges in the magazine are practically suspended by their heads, as seen in Figs. 4 and 5.

The magazine is charged while the breech-piece and magazine are in the closed position. The cover V is thrown open, as seen in Fig. 12, and a cartridge introduced head first into the open space forward of the magazine and against the follower P, sufficient backward force being applied to the cartridge against the follower to cause the follower to fall back, so that the head of the cartridge may pass up into the magazine in rear of the abutment T, as represented in broken lines, Fig. 12, and until the head of the cartridge reaches the grooves *c*, and so that the cartridge may pass into the magazine. Then successive cartridges are in like manner introduced until the magazine is completely charged, as seen in Fig. 5. The follower, receding, compresses the magazine-spring P as the cartridges are successively introduced.

In order to permit the heads of the cartridges to pass up into the grooves *c*, the sides of the magazine-chamber are recessed at the forward end, as at *d*, (see Figs. 12 and 6,) the recesses opening forward below the abutment and extending up into the grooves *c*.

The cartridges being arranged in the magazine as described, and as illustrated in Fig. 5, it will be observed that they stand vertically when the magazine is in its closed or normal position, and that under the swinging or oscillatory movement of the magazine in the opening movement, when the extreme open position is reached, as seen in Fig. 9, the cartridges then stand in a longitudinal position, the forward or last-introduced cartridge in the magazine then being uppermost. This is

the position for the transfer of the then uppermost cartridge into its place in the barrel. The opening through the forward end of the magazine extends onto the bottom, and so as to leave an opening *e* through the bottom of the magazine directly below the last cartridge introduced, and as seen in Fig. 5. To automatically transfer the cartridges from the magazine to the barrel, the recess K in the side of the magazine extends forward, and in this recess a two-armed or L-shaped lever *fg* is hung upon a pivot *h*, as seen in Fig. 3; but so that the said lever may swing in a vertical plane in said recess. The arm *g* extends downward, and at its lower end is provided with an outwardly-projecting stud or shoulder *i*, which when the parts are in the closed position rests against the lower edge of the receiver, as represented in Figs. 1 and 3, and which is the normal position of the said lever. The other arm *f*, when in this normal position, extends forward, and it is divided to form two elastic fingers *kl*. These fingers at their extreme end are constructed with inwardly-projecting shoulders *m n*, respectively, (see Fig. 7,) which extend through an opening *p* into the magazine, as seen in Figs. 3 and 7, this opening being preferably of segment shape, of which the axis of the lever is the center, and so that in the swinging movement of the lever, as from the position seen in Fig. 3 to that seen in Fig. 9, the shoulders work through this slot *p*. The back of the respective shoulders *m n* is beveled, so that they may operate as latches. These shoulders in the closed or normal position stand in line with the groove *c* in the magazine and so as to practically form a forward continuation of that groove, the shoulders working through the downward extension *d* of the groove *c*. As each cartridge is inserted into the magazine, as before described, its head will strike the beveled back of the shoulder *m* and force the finger *k* laterally, as also indicated in broken lines, Fig. 7, until the head may pass above the shoulder *m*. Then the head of the cartridge stands within the grasp of the two shoulders *m n*, and as seen in Fig. 7, from whence it will pass into the groove *c* when the next cartridge is inserted. This finger *k* with its shoulder *m* therefore acts as a latch to catch each cartridge as it is inserted into the magazine, the shoulder *n* being in a position to bear against the rear end or head of the cartridge.

As represented in Figs. 3 and 7, a cartridge stands within the grasp or between the shoulders *m n* of the lever *fg*. The recess in the side of the magazine in which the lever *fg* is arranged is open at the top at the forward end, as at *r*, so that the upper side of the arm *f* is exposed through the said opening *r*, and in the receiver in the path of the said opening *r* is a stud *s*, and so that as the breech-piece is opened at the proper time the arm *f* of the lever will strike the said stud *s*, as represented in Fig. 8, the stud *s* being shown in broken lines.

Up to this point the lever $f g$ turns with the magazine; but at this point the further rearward movement of the lever $f g$ is prevented, but the magazine continues its opening movement. Consequently the shoulder n of the arm f of the said lever operates against the head of the cartridge, and so as to give to the cartridge substantially a forward movement from the magazine toward the barrel, or, rather, holds the cartridge so that the magazine may move away from it, and, as seen in Fig. 9, this movement of the cartridge from the magazine takes the head end from the abutment T and into the opening through the forward or then upper end of the magazine, and so that the cartridge thus advanced will be forced upward by the magazine-spring into line with the barrel, as represented in broken lines, Fig. 9, and so that the head end of the cartridge will then stand forward of the abutment T , as seen in broken lines, said Fig. 9. As the magazine is returned from this wide-open position, the abutment T strikes the rear end of the cartridge-rest, as before described, and so as to force it forward into the barrel until, when the magazine and breech-piece reach the closed position, as seen in Fig. 12, the cartridge is in its place in the barrel ready for firing. On the return or closing movement of the magazine the lever $f g$ will move with the magazine until the shoulder i of the arm g strikes the receiver, as indicated in broken lines, Fig. 10. Then, the further movement of the said lever being prevented, the magazine will continue its movement until completely closed, which brings the lever and magazine into the same relation as that first described, and as represented in Fig. 3. In thus returning the lever to its normal position the beveled back of the shoulder of the finger l will strike the under side of the head of the next cartridge of the column, as represented in Fig. 16, and will ride over the head of the cartridge until it may escape and pass over the head, as seen in Fig. 7, ready to engage the said next cartridge on the next opening movement of the magazine.

To firmly hold the lever $f g$ when the parts are in their closed position, as seen in Fig. 3, the shape of the recess in the side of the magazine in which the lever works is such that at one point, as at 2, the said edge bears against the lever, so as to hold the stud i firmly to its bearing on the edge of the receiver.

It is frequently desirable to hold the cartridges in reserve in the magazine and so that the arm may be used as a single breech-loader. To this end the stud or shoulder s , which gives to the cartridges their initial forward movement toward the barrel, as before described, is constructed so as to be thrown out of the path of the swinging lever $f g$, and so that when the lever escapes the said stud or shoulder s the lever will not be operated upon or the forward cartridge moved from its position in the magazine. The construction

whereby the stud s is thus made movable is illustrated in Figs. 14 and 15. The stud is made a part of an elastic slide 3, arranged in a recess 4 in the receiver, and so that a limited amount of longitudinal movement may be imparted to the said slide and the stud s , which it carries. Through that side of the receiver a longitudinal slot 5 is formed, through which a finger-piece 6 extends into connection with the said slide 3, this finger-piece being upon the outside of the receiver, as seen in Fig. 1, and in a convenient position to be worked by the operator. The rear end of the recess 4 terminates in an inward incline 7, upon which that end of the slide 3 may work, and so that the slide being thrown rearward, as from the position in Fig. 15 to that in Fig. 14, the stud will be thrown outward into the path of the arm f of the lever, and so that that arm will strike the stud, as represented in Fig. 14, and be arrested to produce the forward movement of the cartridge, as before described; but if the said slide be thrown forward, as represented in Fig. 15, the stud springs into the recess 4 and so as to stand out of the path of the said lever f , and thereby prevent the stopping of the said lever or effect upon the cartridge in the magazine. Whenever, therefore, the operator desires to hold the cartridges in the magazine and work the arm as a single-loader, he throws the finger-piece forward to the position seen in Fig. 15, or if he desires to use the cartridges in the magazine he moves the finger-piece to the position seen in Fig. 14.

The hammer 8 is in the form of a longitudinal spindle arranged in a longitudinal opening through the breech-piece above the magazine, and as clearly seen in Fig. 5. At its forward end it is provided with a striking-point 9, adapted to reach the primer of the cartridge when in the extreme forward position shown in Fig. 5. The hammer is also preferably constructed with a shoulder 10, which will bear against a corresponding shoulder 11 on the breech-piece when it is in its extreme forward position.

To make the hammer self-cocking, the recess in which it is arranged is constructed so as to permit a rocking movement of the breech-piece in a vertical plane. To produce this rocking movement the bottom of the hammer-recess in the breech-piece is inclined forward and backward from the point 12 midway of the length of said passage. The hammer is constructed with a longitudinal recess 13, opening from the rear end of the hammer, in which recess the mainspring 14 is arranged, the spring being preferably a spiral spring, its forward end resting against the forward end of the said recess 13 and its rear end seated upon a lever 15, which enters the rear end of the breech-piece. This lever is hung upon a pivot 16, stationary in the breech-piece, the lever being constructed with a longitudinal slot 17 to work over the said pivot 16, the lever extending to the rear of the pivot.

Above the hammer-recess in the receiver a stationary shoulder 18 is made at a point distant from the rear end of the barrel, according to the length of stroke required for the hammer. The rear end of the lever 15 is rounded, as seen in Fig. 5, and so that when the breech-piece is in the closed position the said rounded end may extend rearward over and so as to rest upon a corresponding surface 19 in the upper side of the receiver, the mainspring forcing the said lever 15 to its rear position, and so that the said lever taking its bearing upon the seat 19 of the receiver, as seen in Fig. 5, serves as a resistance to prevent the accidental downward movement of the breech-piece and magazine, but yet will yield to a force applied to the magazine-handle. The rounded end escaping from the said seat 19 will ride down upon the rear end of the magazine-recess in the receiver. The tendency of the mainspring bearing against the end of the lever 15 is to throw the rear end of the breech-piece downward and the forward end upward, as seen in Fig. 10, so that when free from other influence the forward end of the hammer stands in the raised position, as seen in Fig. 10. A stop 20 is formed in the forward end of the breech-piece, of V shape, and so that a corresponding V-shaped recess in the end of the breech-piece may pass onto the said stop 20 when the hammer is free so to do, and as seen in Fig. 10. This stop prevents the escape of the forward end of the hammer from the breech-piece or its rising to too great an extent.

In throwing the breech-piece to the open position the hammer moves with it, as seen in Fig. 8; but on the return of the breech-piece, as seen in Fig. 10, the forward end 21 of the breech-piece will strike the shoulder 18 on the receiver, and the further forward movement of the hammer will be accordingly arrested. The breech-piece continuing its closing movement while the hammer is so held leaves the hammer at the cocked position, as seen in Fig. 12, the shoulder 18 forming the cock-notch for the hammer.

To discharge the hammer, the trigger 22 is hung upon a pivot 23 at the rear of the magazine, the finger-piece of the trigger extending down so as to be operated in the usual manner. An arm 24 of the trigger extends above the pivot, and against this arm the magazine-spring bears, so that the said spring may also serve as a trigger-spring; but any suitable spring may be applied to the trigger. To the trigger, upon a pivot 25 in rear of the trigger-pivot, a dog 26 is hung, which extends up into the hammer-recess, and so that its upper end will stand below the hammer when in the cocked position, as represented in Fig. 12. Consequently the pull upon the trigger, as indicated in broken lines, Fig. 12, will impart a rising movement to the dog 26, which will throw the rear end of the hammer upward, as represented in broken lines, Fig. 12. The hammer working over the high point 12

in the hammer-recess as a fulcrum, the forward end of the hammer will be thrown downward and so as to escape from the cock-notch 18, as also seen in broken lines, Fig. 12, and when the hammer so escapes its mainspring will force it forward to deliver its blow, as represented in Fig. 5.

To lock the arm against accidental firing, a sliding bolt 27 is arranged in the receiver in rear of the magazine-recess, and so that it may be forced forward over a corresponding shoulder 28 in the dog 26, as seen in Fig. 5, thus preventing the possible ascent of the said dog to produce disengagement of the hammer; but when the bolt is withdrawn, as seen in Fig. 12, the dog is free to be operated by a pull of the trigger. As before described, the bolt is provided with an exposed thumb-piece 29 at its rear end, by which the operator may conveniently work it.

The breech-piece is provided with an extractor-hook 30 in the side of the breech-piece on which is the discharge-opening, as seen in Fig. 13, and as seen in that figure the receiver is provided with a shoulder 31, against which the head of the cartridge will strike as it or the shell is retracted and as the breech-piece approaches its extreme rear position, and so that the cartridge-shell will be ejected through the side, as indicated in broken lines, Fig. 13. This, however, is a common extracting device for which other known extractors may be substituted.

While we prefer to make the magazine as an integral part of the breech-piece, or so that the breech-piece will swing backward and downward with the magazine, the magazine may be made separate from the breech-piece and the breech-piece arranged to move longitudinally backward, as usual for such breech-pieces, the magazine being hung to the breech-piece near its forward end, as seen in Fig. 17. In this case the breech-piece forms the longitudinal guide which controls the longitudinal movement of the pivot on which the magazine swings, and in such arrangement the hammer may be of usual construction and arrangement, not necessary to be shown; but in such arrangement the advantages of the swinging magazine are retained.

The arrangement of the hammer which we have described may be employed in fire-arms in which the breech-piece is constructed to swing backward and downward in the manner which we have described for the breech-piece in this construction, and so that the rocking movement of the hammer may serve to catch or disengage it from the cock-notch.

We have represented the magazine as operated by a handle beneath the receiver; but it will be understood that it may be otherwise operated, as in the case of a longitudinally-moving breech-piece, and as illustrated in Fig. 18, in which the magazine is represented as hung to a breech-piece constructed to be operated by a radially-projecting handle, after the manner of what are commonly

called "bolt-guns." The invention is therefore not to be understood as limited to the specific construction of all the parts, as described.

5 We claim—

1. In a fire-arm in which the barrel opens at its rear end into a recess in the receiver, the combination therewith of a magazine hung upon a pivot in said recess and so as to swing in a vertical plane downward and backward in opening, the pivot upon which the magazine swings arranged to move longitudinally backward in the opening movement of the magazine and forward in the closing movement of the magazine, whereby the vertical position of the magazine in the closed position is brought into substantially a horizontal position when the magazine is open, the magazine constructed open at its forward end for the introduction or removal of the cartridges, substantially as described, and whereby the forward cartridge in the magazine is presented to the open end of the barrel forward of the open breech-piece when the magazine is in the said open position and transferred from the magazine to the barrel as the breech-piece and magazine are brought to the closed position.

2. In a fire-arm in which the barrel opens at its rear end into a recess in the receiver, the combination therewith of a magazine hung upon a pivot in said recess and so as to swing in a vertical plane, the said magazine extending through the bottom of the said recess in the receiver and provided with a handle below, by which swinging movement may be imparted to the magazine, the pivot upon which the magazine swings arranged to move longitudinally backward as the magazine is turned toward the open position and returned as the magazine is closed, the said magazine open at its forward end for the introduction or removal of cartridges, the said forward end in the closed position becoming the upper end of the magazine when the magazine is in the open position, substantially as described, and whereby the forward cartridge in the magazine is presented forward of the open breech-piece when the magazine is in the open position and transferred from the magazine to the barrel as the breech-piece and magazine are brought to the closed position.

3. In a fire-arm in which the barrel opens at the rear into a recess in the receiver, the combination therewith of a breech-piece hung upon pivots in said receiver and so as to swing downward and backward in opening, the said pivots arranged for rear longitudinal movement in opening and for return longitudinal movement in the closing of the breech-piece, the breech-piece constructed with a chamber below it for the magazine to receive and carry several cartridges, the magazine and breech-piece provided with a handle by which the opening and closing swinging movement may be imparted thereto, the magazine

open at its forward end for the introduction or removal of the cartridges, substantially as described.

4. In a fire-arm in which the barrel opens at the rear end into a recess in the receiver, the combination therewith of a magazine hung upon pivots in the receiver, so as to swing in a vertical plane backward and downward in opening, the said pivots arranged for longitudinal backward and forward movement in the receiver respectively in the opening and closing movement of the magazine, the magazine open at its forward end for the reception or removal of cartridges and constructed with an abutment *T* at its forward end, closing the upper portion of said open forward end, a lever *f g*, hung upon a pivot *h* in a recess in the side of said magazine, one arm *f* of the said lever divided to form two elastic fingers, each finger provided with a shoulder, respectively, *m n*, the said shoulders working through an opening into the inside of the magazine and adapted to engage the flange of the foremost cartridge in the magazine, and a stop in the receiver in the path of said lever during the opening movement and adapted to arrest the swinging movement of the lever as the magazine approaches its wide-open position, the said lever also adapted to engage a stationary bearing upon the receiver as the magazine approaches its closed position, the magazine provided with a handle below, by which the opening and closing movement is imparted, the breech-piece being adapted to open and close with the said magazine, substantially as described.

5. In a fire-arm in which the barrel opens into a recess in the receiver at the rear, a magazine hung upon pivots in said recess and so as to swing in a vertical plane downward and backward in opening, the said pivots arranged to move longitudinally backward in the opening movement and forward in the closing movement, whereby the vertical position of the breech-piece in the closed position is brought into substantially a horizontal position when open, the magazine constructed open at its forward end, with an abutment *T* across the said opening at the upper end, the magazine also constructed with longitudinal grooves *c* upon its sides near the top, adapted to engage the flanges of the cartridges, and the said sides of the magazine constructed with a recess *d*, opening from said grooves forward to a point below said abutment *T*, the lever *f g*, hung upon a pivot *h* in a recess in one side of the magazine, the arm *f* of the said lever constructed with a projection into the magazine, forming a spring-latch adapted to engage the head of the foremost cartridge in the magazine, a stop in the receiver in the path of said lever in the opening movement and so as to arrest the movement of the said lever as the magazine approaches its extreme opening movement, and a stationary stop on the receiver adapted to engage said lever as

the magazine approaches its closing movement, substantially as and for the purpose described.

6. In a fire-arm in which the barrel opens at the rear end into a recess in the receiver, a breech-piece arranged in said recess and hung upon a pivot therein so as to swing in a vertical plane, the said pivot arranged to receive a rear longitudinal movement as the breech-piece opens, and a like forward longitudinal movement as the breech-piece is closed, the breech-piece constructed with a chamber below forming a magazine adapted to receive several cartridges, the magazine open at its forward end for the introduction and removal of cartridges and provided with a handle by which the said swinging movement may be imparted, the breech-piece constructed with a longitudinal recess, a hammer arranged in said longitudinal recess of the breech-piece so as to move longitudinally therein, a mainspring for said hammer, said hammer adapted to receive a vertical rocking movement, the receiver constructed with a stationary shoulder 18 above said hammer, and with which the said hammer is adapted to engage as the breech-piece approaches its closed position, and so as to hold the hammer at the cocked position, with a trigger and a connection therefrom to the hammer when in the cocked position, and whereby said hammer may be disengaged from said cocked position, substantially as described.

7. In a fire-arm in which the barrel opens at the rear into a recess in the receiver, a magazine hung upon pivots in said recess and so as to swing in a vertical plane, the said pivots arranged in guides so as to move longitudinally rearward as the magazine opens and forward as the magazine closes, and whereby in the opening movement of the magazine it is brought from a vertical position to substantially a horizontal position, the magazine open at its forward end for the insertion and removal of cartridges, the recess in the receiver extending forward of the magazine when the magazine is in the closed position, a cover hinged to the receiver forward of the magazine and adapted to open and close the said opening into the receiver at the forward end, the said cover provided with a spring adapted to yieldingly hold it in the closed position, with mechanism, substantially such as described, to successively transfer the cartridges from the magazine to the barrel during the closing or forward swinging movement of the magazine, substantially as described.

8. In a fire-arm in which the barrel opens at the rear into a recess in the receiver, the combination therewith of a breech-piece hung upon pivots in the receiver so as to swing in a vertical plane, the said pivots arranged in guides to move rearward as the breech-piece opens and forward as the breech-piece closes, the breech-piece extending through the bottom of the receiver and provided with a handle by which it may be operated, the breech-piece also constructed with a longitudinal opening through it in line with the barrel when in the closed position, a hammer arranged in said recess, the said recess constructed with a rocking bearing for the hammer and whereby a vertical rocking movement may be imparted to said hammer, a mainspring arranged in a recess in said hammer, a stationary shoulder in the receiver which the hammer is adapted to engage as the breech-piece approaches its closed position and so as to arrest the forward movement of the hammer, a trigger arranged in the breech-piece, and a dog in connection with said trigger adapted to engage said hammer when the said hammer stands arrested by said shoulder, substantially as described, and whereby under the pull of the trigger the hammer may be disengaged from said shoulder.

9. In a fire-arm in which the barrel opens at the rear into a recess in the receiver, the combination therewith of a magazine hung in the recess in the said receiver and adapted to receive a swinging movement in a vertical plane and at the same time a longitudinal rear movement in opening and corresponding forward movement in closing, the lever *f g*, hung in a recess in the side of the said magazine, the arm *f* of the said lever constructed with shoulders working through an opening in the side of the receiver into the magazine and adapted to engage the flange of a cartridge therein; a longitudinal slide *s*, arranged in the receiver and carrying a stop *s*, the said slide provided with a finger-piece by which longitudinal movement may be imparted to it, the receiver constructed with an incline in the path of movement of said lever, substantially as described, and whereby said stop may be thrown into or out of the path of said lever.

JOHN M. BROWNING.
MATTHEW S. BROWNING.

Witnesses:

M. L. JONES,
JOHN E. RAMSDEN.