

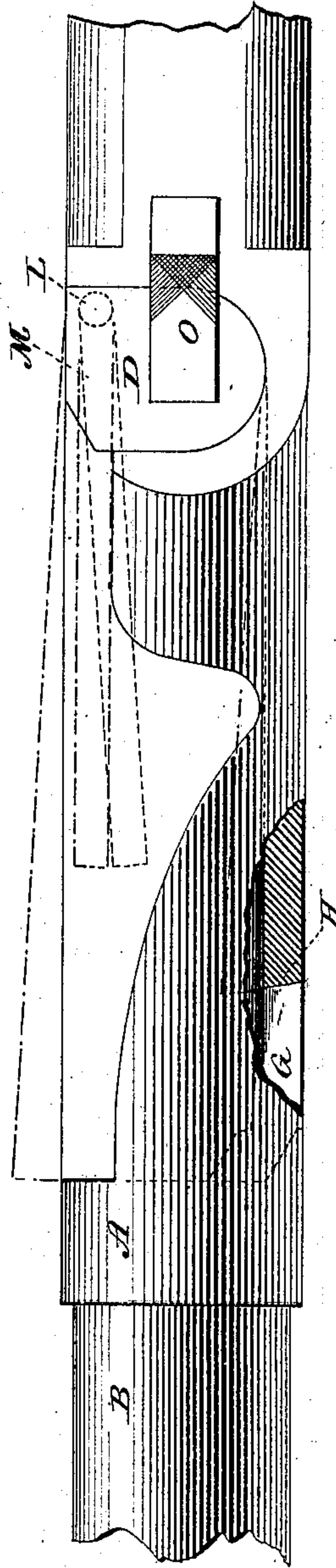
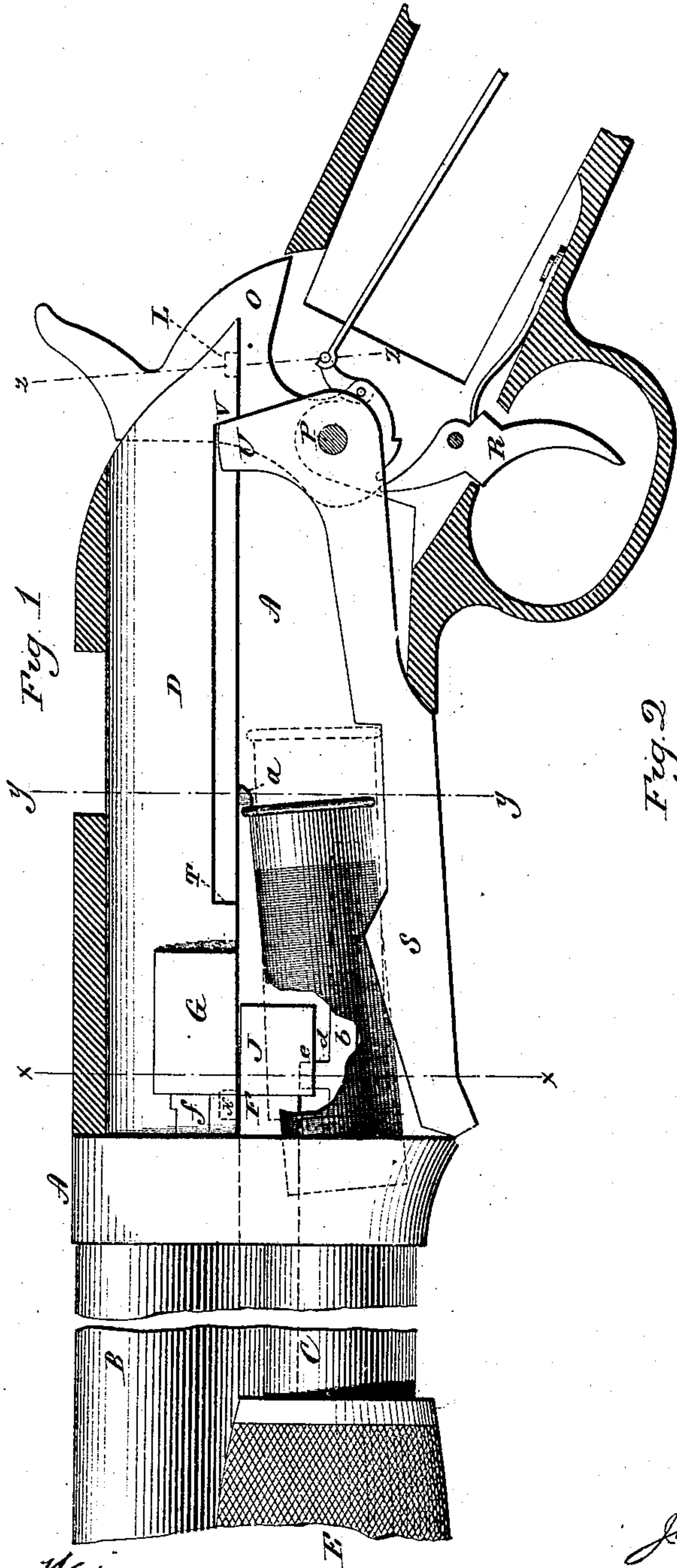
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3 Sheets—Sheet 1.

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

No. 409,599.

Patented Aug. 20, 1889.



Witnesses,
J. H. Shumway
Fred Chase

John M. Browning
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By atty. J. M. Chase

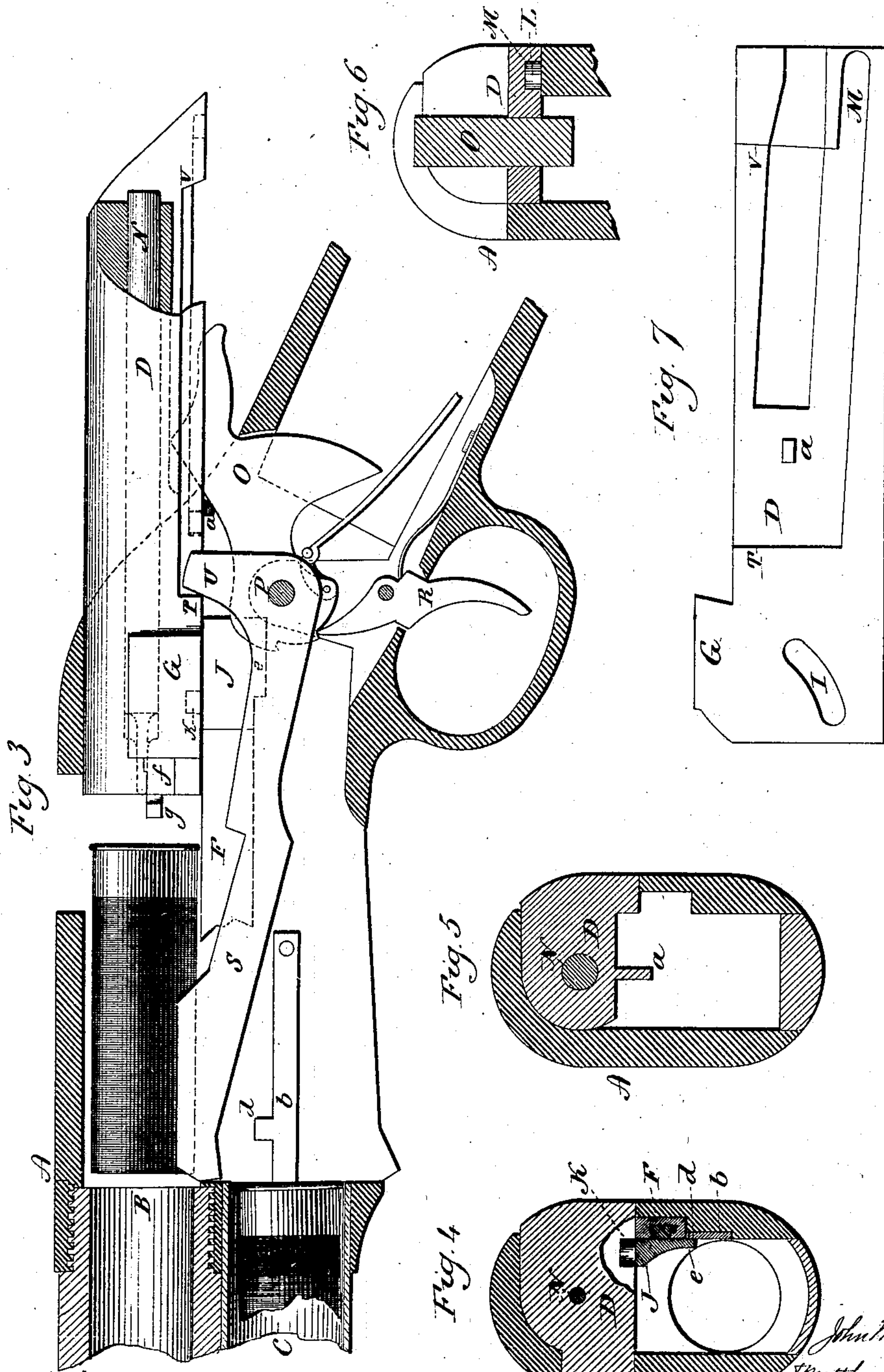
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(No Model.)

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Fig. 12

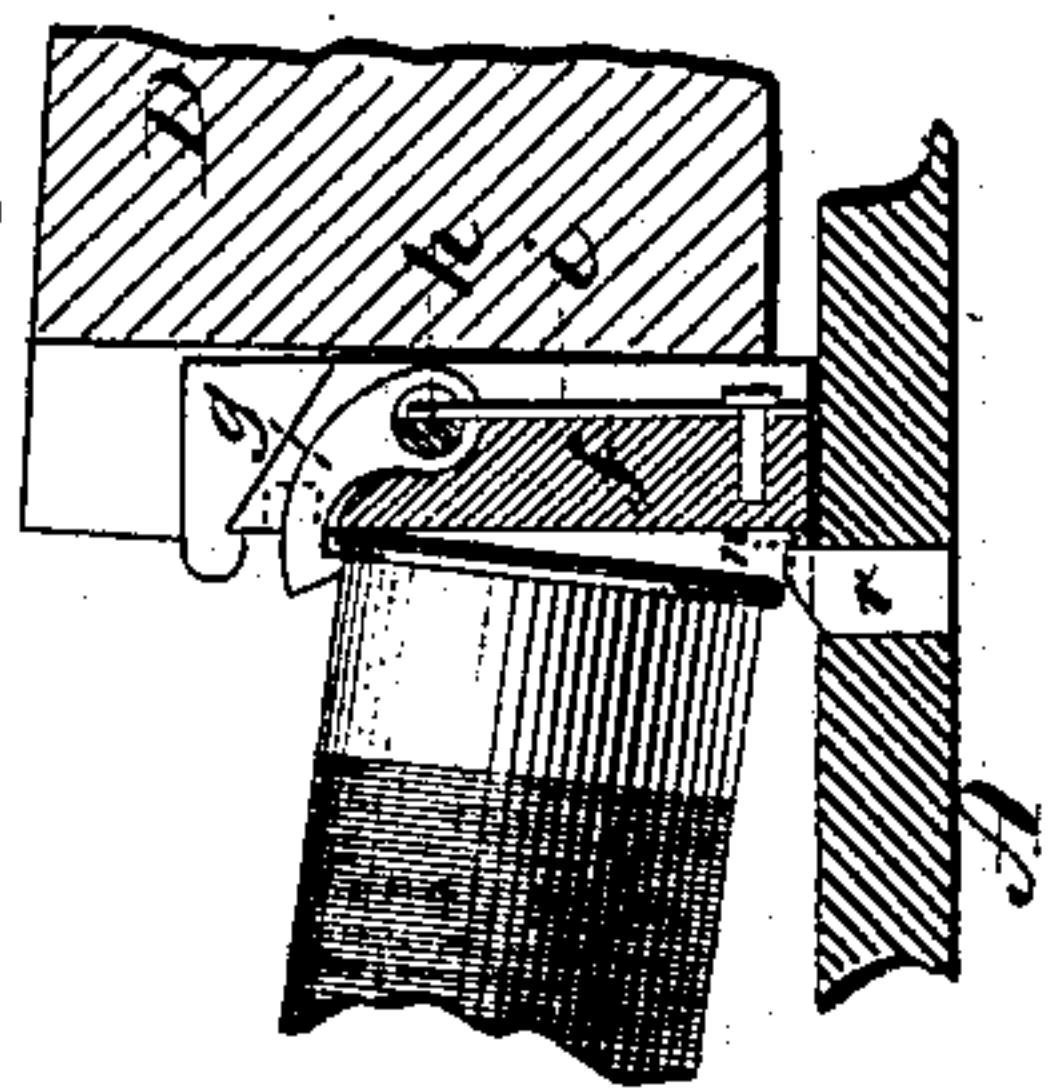


Fig. 10

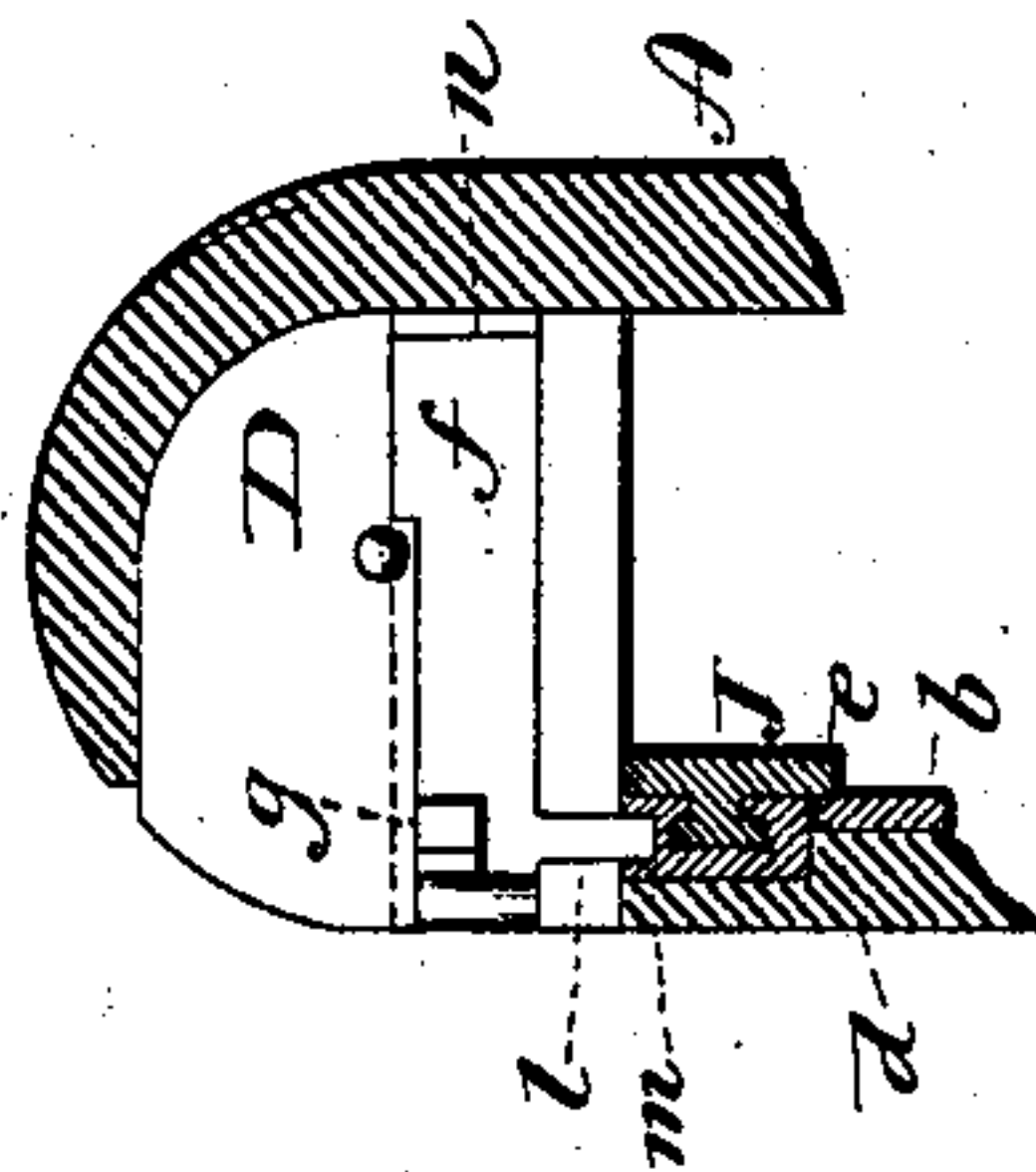


Fig. 8

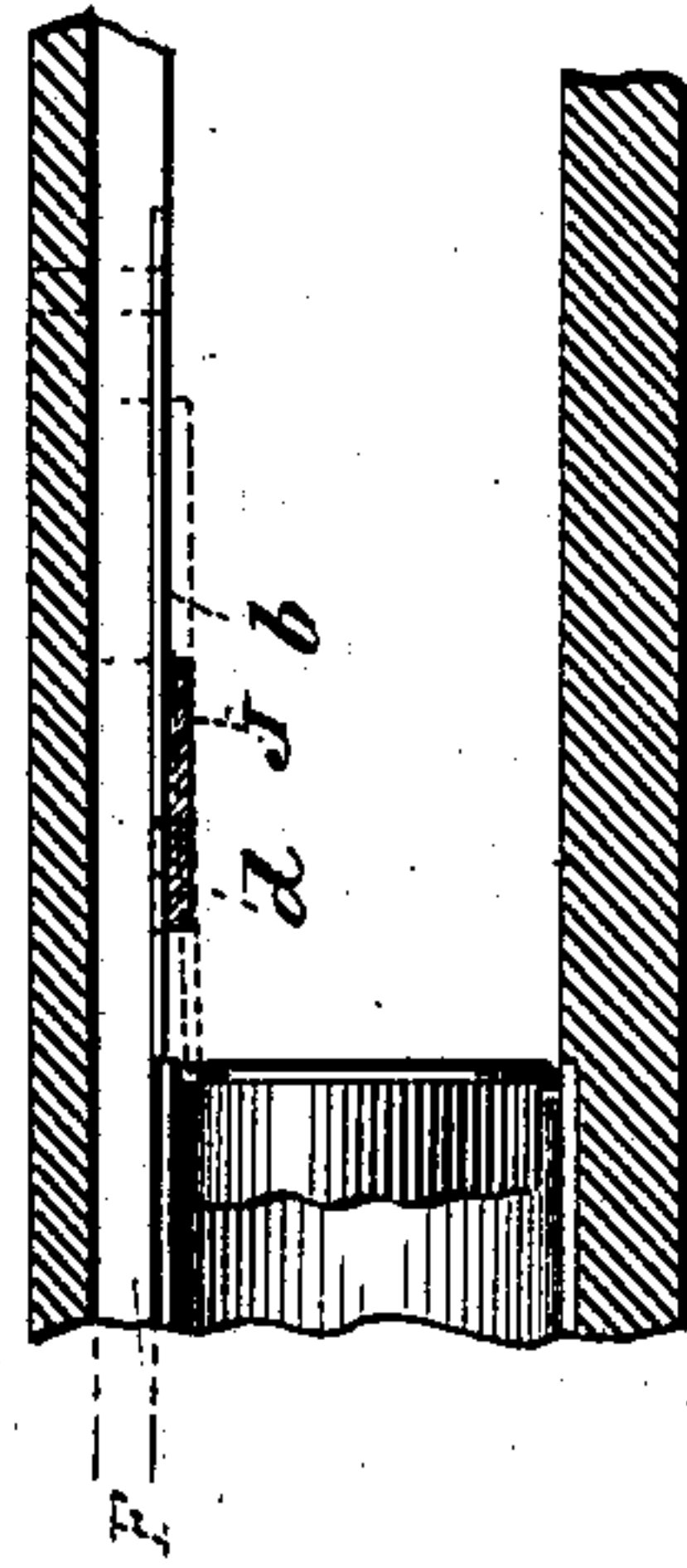


Fig. 11

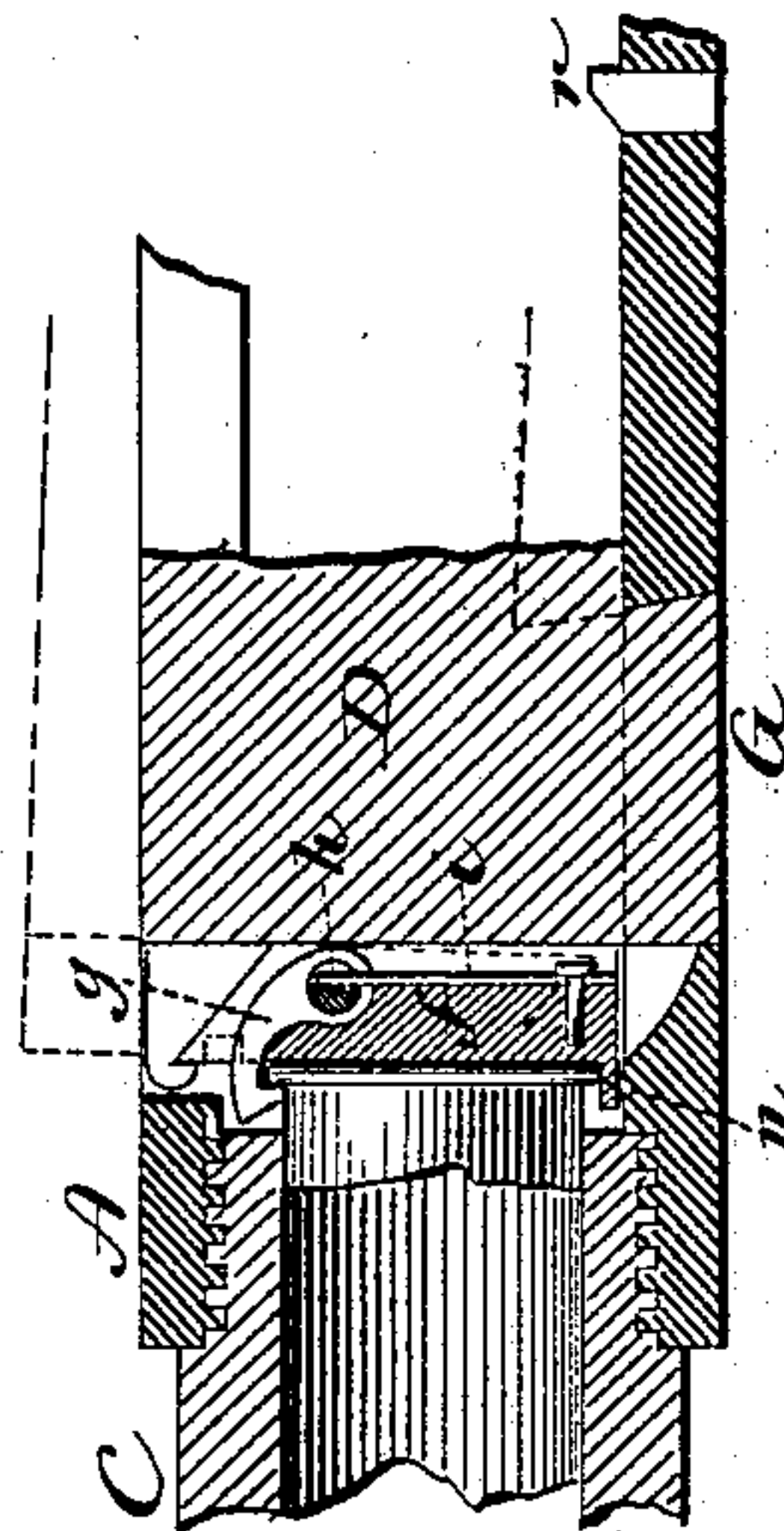
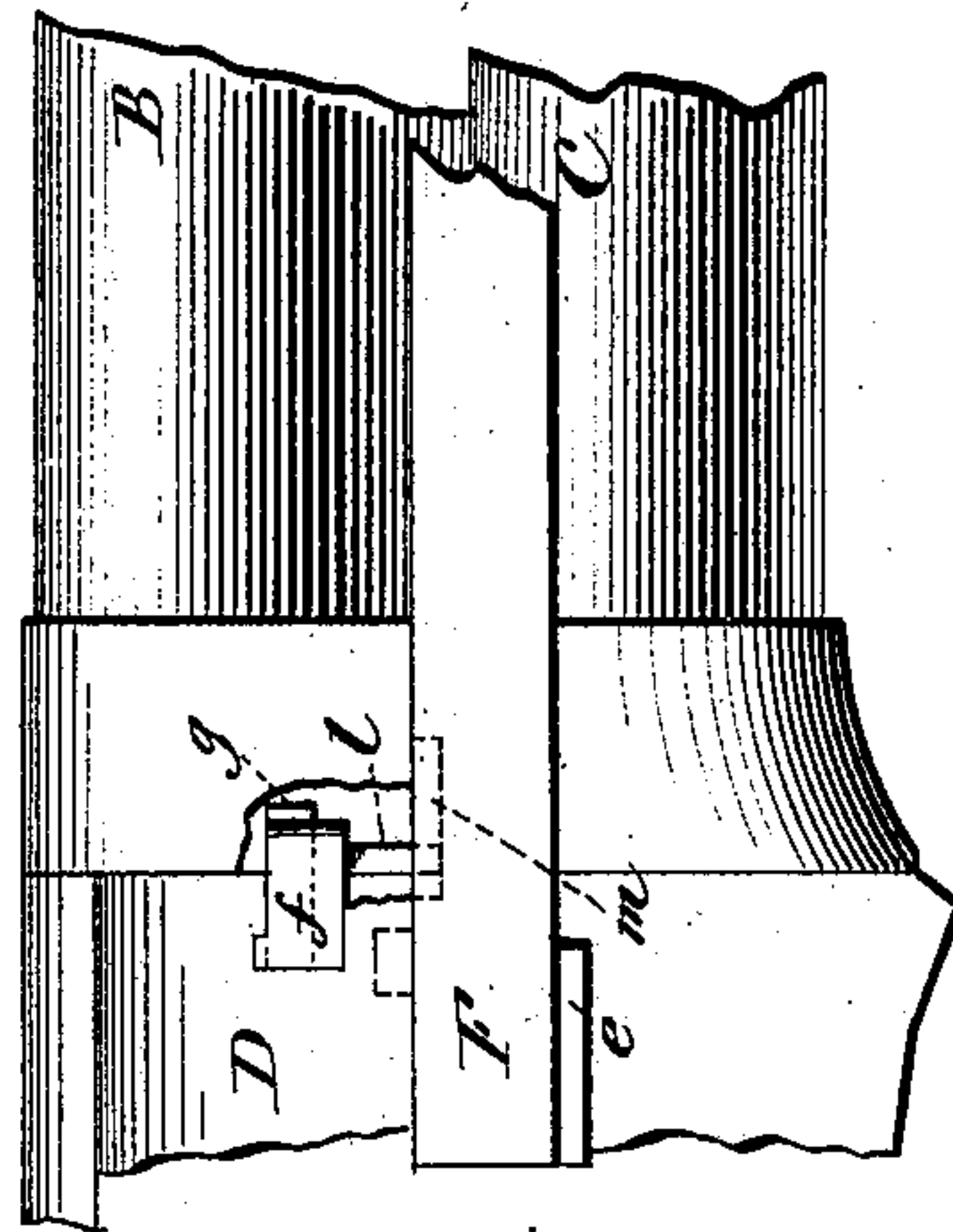


Fig. 9



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UNITED STATES PATENT OFFICE.

JOHN M. BROWNING AND MATTHEW S. BROWNING, OF OGDEN, UTAH TERRITORY.

MAGAZINE FIRE-ARM.

SPECIFICATION forming part of Letters Patent No. 409,599, dated August 20, 1889.

Application filed May 21, 1888. Renewed January 8, 1889. Serial No. 295,806. (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 invented new Improvements in Magazine Fire-Arms; and we 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, a longitudinal sectional side view of the arm, showing the parts in the closed position; Fig. 2, top view of the receiver, portion broken away to illustrate the locking device for the breech-piece; Fig. 3, longitudinal section showing the parts in the position of the breech-piece open; Fig. 4, transverse section on line *xx* of Fig. 3, looking forward; Fig. 5, transverse section on line *yy* of Fig. 3, looking forward; Fig. 6, transverse section on line *zz* of Fig. 3, looking forward; Fig. 7, under side view of the breech-piece; Fig. 8, horizontal section illustrating the operation of the magazine-stop; Fig. 9, side view from the right-hand or opening side of the arm, portions broken away for convenience of illustration; Fig. 10, transverse section directly forward of the front face of the breech-piece closed, looking rearward; Fig. 11, horizontal section through the extractor-block, in the closed position; Fig. 12, the same section as Fig. 11, in the open position.

This invention relates to an improvement in that class of fire-arms in which the barrel is open into the receiver at its rear end, and having a breech-piece arranged to slide longitudinally backward and forward in line with the barrel, the said breech-piece being operated by a handle beneath the barrel, forward of the receiver, and in connection with the mechanism of the arm, so that by moving the handle backward and forward the breech-piece is correspondingly open and closed, a well-known class of arms, adapted more especially to arms in which a magazine is provided beneath the barrel, opening also into the receiver at the rear onto a carrier, which under the opening movement of the breech-piece presents the cartridge forward of the

front face of the breech-piece, so that the breech-piece in returning will force the cartridge into the barrel and return the carrier to receive a second cartridge, and so on.

The object of our present invention is to make the breech-piece its own lock, when in the closed position, to resist recoil; and it consists in arranging the breech-piece in guides, so as to move longitudinally backward and forward in the receiver, but at the same time hung upon a pivot at the rear, so that the forward end of the breech-piece may be thrown to the right and left in a horizontal plane; the breech-piece constructed with a laterally-projecting shoulder which, when in the closed position, will engage a corresponding shoulder in the receiver, and so that the said shoulder on the breech-piece, resting against the stationary shoulder in the receiver, serves to resist recoil. The horizontal swinging movement imparted to the breech-piece correspondingly disengages or engages said shoulders, accordingly as the movement is opening or closing, and combined with mechanism whereby the said lateral swinging movement is imparted to the said breech-piece before it commences its rear movement to unlock the breech-piece, and the said lateral movement returned after the breech-piece reaches its forward position to bring it into the locked position, as more fully hereinafter described.

A represents the receiver, which is provided at the forward end with the usual barrel B, opening into the receiver at the rear, and beneath the barrel is the usual magazine C, also opening to the rear.

D is the breech-piece, which is arranged in longitudinal line with the barrel and so as to slide backward and forward longitudinally in the receiver, as usual in this class of fire-arms, and so that the breech-piece, when in its extreme forward position, closes the rear end of the barrel and supports the cartridge against recoil, or when withdrawn permits the introduction of a cartridge or removal of an exploded shell. Beneath the barrel and forward of the receiver the sliding handle E is arranged, so as to be guided in a longitudinal path backward and forward toward the receiver in the usual manner for the handle in arms of this class. From the handle a bar

F extends into the receiver, and so as to slide backward and forward with the handle, the handle serving as a means for operating the mechanism of the arm.

5 The breech-piece is constructed with a lateral projection G on its left-hand side, (see Figs. 4, 5, and 7,) which, when the breech-piece is closed, rests in a corresponding recess in the side of the frame, the said recess forming
10 a shoulder H, (see Fig. 3,) with which the shoulder of the said projection G engages, and so as to support the breech-piece in the closed position against the force of the recoil. This lateral locking of the breech-piece necessitates
15 a lateral swinging or vibratory movement of the breech-piece to disengage it from its locked position before it can be opened. To impart such lateral swinging movement a diagonal groove I is formed upon the under
20 side of the breech-piece, at its forward end, as seen in Fig. 7. The bar F carries a block J, made fast to its rear end, and from which a stud K extends into the said groove I in the forward end of the breech-piece, as seen in
25 Fig. 4, and shown in broken lines, Figs. 1 and 3. The stud K receives only a longitudinal movement from the bar, and under such longitudinal movement the stud works in the groove I as a cam, so that the breech-piece
30 being in the closed position the first part of the rear movement of the handle operates through the said stud and groove to throw the breech-piece to the right, as represented in Fig. 2, so far as to take the projection G away
35 from the shoulder H and thereby unlock the breech-piece. To support the breech-piece so that it may receive this lateral vibratory movement a stationary stud L is formed on the receiver at the rear and extends up into a corresponding longitudinal groove M on the under
40 side of the breech-piece, (see Figs. 6 and 7, and also indicated in broken lines, Fig. 2.) This stud engagement with the breech-piece at the rear forms a pivot upon which the
45 breech-piece may swing to the right and return. When the breech-piece is thrown to the extreme unlocked position through the combined action of the stud K and the diagonal groove I, the groove M is brought into a
50 direct longitudinal line, as indicated in Fig. 2, so that when the breech-piece has been thus thrown to the right the stud K comes to a bearing at the rear end of the groove I and there engages the breech-piece, so that the
55 continued rear movement of the handle will impart such rear movement to the breech-piece, the breech-piece then sliding rearward until it reaches the extreme open position, as indicated in Fig. 3. In such rear movement
60 the projection G rides upon the inside of the receiver. Now, if the handle E be returned—that is, moved forward—the engagement between the groove I and the bar will cause the breech-piece to move forward with it until it
65 reaches the closed position indicated in broken lines, Fig. 2. At this point the projection G on the breech-piece, having arrived at a po-

sition forward of the shoulder H, leaves the breech-piece free for a return lateral movement, which is imparted by the return of the
70 stud K through the groove I, and so that the last part of the forward movement of the handle imparts the lateral swinging movement to the breech-piece and brings the locking-projection G into engagement with the
75 shoulder H of the receiver, and the breech-piece is firmly held in its closed position to enable it to resist recoil. The right-hand side of the receiver is left open to permit the back and forward movement of the breech-piece,
80 as indicated in Figs. 2, 4, 5, and 6. The receiver from the left-hand side, however, extends over the breech-piece sufficient to form a guide and support for the breech-piece. The opening on the right-hand side permits
85 the introduction of cartridges to the barrel when the breech-piece is open.

The breech-piece is provided with the usual firing-pin N, which extends longitudinally through it, and below the breech-piece a hammer O is hung upon a pivot P, in the usual
90 manner, and so that as the breech-piece is thrown rearward the hammer is thrown to the full-cocked position, as seen in Fig. 3, and engaged by the trigger R, in the usual
95 manner for such hammers. These firing devices, being common and well known, do not require specific description.

In the receiver, beneath the breech-piece, a carrier S is hung, (here represented as upon
100 the same pivot as the hammer,) so as to swing up and down, as from the position in Fig. 1 to that seen in Fig. 3. The carrier is caused to move up by means of a shoulder T, on the under side of the breech-piece, which
105 engages a projection U from the hub of the carrier as the breech-piece approaches its extreme rear position, as seen in Fig. 3, and so that in the completion of the rear movement of the breech-piece the carrier is raised, as
110 represented in Fig. 3, to take a cartridge which it may have received from the magazine to a position forward of the front face of the open breech-piece. Then, as the breech-piece returns, a shoulder V at the rear engages
115 the reverse side of the projection U on the carrier and returns it to the down position, as represented in Fig. 1. This operation of the carrier is common in this class of fire-arms.

On the under side of the breech-piece a stop
120 a is formed, against which the head of a cartridge passing from the magazine onto the carrier will strike before a cartridge has passed entirely from the magazine, as represented in Fig. 1. Then, as the breech-piece
125 commences its opening movement that rear cartridge, under the action of the magazine-spring, will follow the breech-piece until it arrives at its proper position on the carrier, as indicated in broken lines, Fig. 1. This
130 stopping of the rearmost cartridge before it arrives at its position on the carrier is done in order to provide a stop for the column of cartridges in the magazine that the carrier as

it rises or drops may not interfere with the next cartridge in the magazine.

Upon the inside of the receiver and below the bar F a magazine stop-spring *b* is arranged. It is made stationary at its rear end, but its forward end is free, as seen in Fig. 8, so that when free its forward end projects into the receiver and in rear of the magazine, as indicated in broken lines, Fig. 8, so as to form a stop for the rearmost cartridge in the magazine. The spring is constructed with an upwardly-projecting finger *d*, which stands in the path of the lower edge *e* of the block J, formed upon or attached to the bar F, and so that when the breech-piece is in the extreme closed position this downward projection *e* of the block J will stand inside the finger *d*, as represented in Figs. 1, 4, and 8, and hold the spring out of line with the magazine, as seen in Fig. 8, so that when the breech-piece is fully closed the stop is withdrawn and the column of cartridges in the magazine is free to move rearward, the rearmost cartridge then passing onto the carrier against the stop *a*, as before described. In the first part of the rear movement of the bar F the projection *e* of the block J passes from the finger *d* and leaves the spring free to fly inward, as seen in broken lines, Fig. 8, into position to stop the next cartridge in the magazine. It arrives at this position while the swinging movement is being imparted to the breech-piece and before the breech-piece commences its rear movement; hence, as the rearmost cartridge passes onto the carrier, as before described, the spring-stop *b* stands in the path of the next cartridge, so as to arrest its rear movement, as represented in Fig. 8. The forward end of the projection *e* and the corresponding edge of the finger *d* are inclined, so that the projection *e* as it moves forward operates as a cam to force the spring-stop outward.

To provide an extractor upon the breech-piece which will engage the head of the cartridge in the magazine, so as to withdraw the shell or cartridge if it be not exploded when the breech-piece is next moved rearward, it is necessary to provide an extractor which will adapt itself to the lateral swinging movement of the breech-piece—that is to say, as the cartridge is to be thrown out through the side opening in the receiver the extractor must be of such a character as will permit the lateral movement of the breech-piece and yet retain its hold of the cartridge in connection with the breech-piece. To do this we arrange a block *f* transversely across the front face of the breech-piece. (See Figs. 9 and 10.) This block stands substantially below the point of the firing-pin, as seen in Fig. 10, and is guided by and so free in the breech-piece that the said block being held to prevent its lateral movement, the breech-piece will move thereon without imparting movement to the said block—say as from the position seen in Fig. 11 to that indicated in

broken lines, same figure. To the block *f* the extractor-hook *g* is hung, so as to swing in a horizontal plane upon a pivot *h*, and a spring *i* is provided in the block, (see Fig. 11,) the tendency of which is to hold the hook in the engaging position but yet allow it to swing so that its hooked nose may pass over the head of the cartridge when the breech-piece is closed and engage the cartridge in substantially the same manner as do other hinged or spring extractor-hooks.

To prevent the block *f* from moving laterally with the breech-piece a downwardly-projecting finger *l* is formed upon the block *f*, which extends down into a corresponding recess *m* in the bar F, as seen in Figs. 9 and 10, so that the block *f* is held against movement in a lateral direction but yet is free to move longitudinally with the breech-piece, the recess *m* in the bar being of sufficient length to permit the opening or closing movement of the breech-piece, as indicated in Fig. 9. On the block *f*, at the end opposite the extractor-hook, a stationary projecting stud *n* is formed opposed to the extractor-hook in the usual manner, so that the cartridge-head will be held between the extractor-hook and the projection *n*; consequently when the breech-piece is moved rearward the extractor will hold the shell by the head and draw it rearward, and as the breech-piece approaches its extreme rear position a shoulder or projection *r* upon the inside of the receiver, and in the path of the flange of the cartridge on the side of the projecting stud *n*, resists the further rear movement of that side of the cartridge and consequently turns the shell outward, as indicated in Fig. 12, so that it is ejected through the opening in the side of the receiver in the usual manner for ejecting cartridge-shells.

It will be understood that any of the known firing devices may be substituted for the hammer and firing-pin which we have illustrated, and that also other known carriers may be substituted for the carrier which we have illustrated, the carrier and firing devices not being material to our present invention.

We claim—

1. In a fire-arm in which the barrel opens into the receiver at the rear, the combination of a breech-piece arranged in the receiver in longitudinal line with the barrel and so as to move longitudinally backward and forward in opening and closing, a handle beneath the barrel, forward of the receiver, with a bar extending therefrom into the receiver beneath the breech-piece, the said breech-piece upon its under side at the forward end constructed with a diagonal groove, and the said bar provided with a corresponding stud entering said groove, the said breech-piece supported upon a pivot stationary in the receiver at its rear, the breech-piece constructed with a lateral projection at its forward end upon one side, and the receiver with a corresponding shoulder with which said projection is adapted to

engage when the breech-piece is closed, the said receiver constructed with its side opposite said shoulder open, substantially as described, and whereby under the first part of the rear movement of said handle the breech-piece receives a lateral movement to disengage it from said shoulder, then by the continued rear movement of said handle receives its opening movement, and on the forward movement of the said handle the breech-piece receives its closing movement, and under the last part of the forward movement of said handle the breech-piece is returned laterally to engage the breech-piece with the said shoulder in the receiver, substantially as described.

2. In a fire-arm having the barrel open into the receiver at the rear, the breech-piece D, arranged in the receiver and so as to move backward and forward in longitudinal line with the barrel, the breech-piece constructed with a lateral projection G upon one side at its forward end, a stationary stud I, in the receiver below the breech-piece at the rear, the breech-piece constructed with a groove M upon its under side corresponding to said stud I, the said stud I forming a pivot upon which the breech-piece may swing laterally when in its closed position, the receiver constructed with the shoulder H, corresponding to the said projection G on the breech-piece when the breech-piece is in the closed position, a handle E, beneath the barrel and movable longitudinally toward and from the receiver, a bar F, extending from said handle into the receiver below the breech-piece, the breech-piece constructed with a diagonal groove I upon its under side at its forward end, the said bar provided with an upwardly-projecting stud K working in said groove I, the receiver open upon its side opposite the said projection G, a block *f*, arranged in a transverse groove in the forward end of the breech-piece, but the said block held against transverse movement, an extractor-hook on said block adapted to engage the head of the cartridge when the breech-piece is closed, substantially as described.

3. In a fire-arm having the barrel open into the receiver at the rear, with a magazine below it opening also into the receiver at the rear, the combination therewith of the breech-piece D, arranged to move longitudinally toward and from the rear end of the barrel, a stationary pivot in the receiver below the breech-piece at the rear, the breech-piece constructed with a longitudinal groove corresponding to said stud, said stud serving as a pivot upon which said breech-piece may swing laterally when in its closed position, the breech-piece constructed with a lateral projection upon one side and the receiver with a corresponding shoulder on the same side with which said projection on the breech-piece is adapted to engage when the breech-piece is in its closed position, the receiver open upon the side opposite the said projection on the breech-piece, the handle beneath the barrel and arranged to move longitudinally toward and from the receiver, a bar F, extending from the said handle into the receiver beneath the breech-piece, the breech-piece constructed with a diagonal groove I, and the bar provided with a corresponding stud K, adapted to work in said diagonal groove I and so as to impart a lateral movement to said breech-piece before the opening movement of the breech-piece commences, and also a return of said lateral movement after the breech-piece closes to correspondingly disengage and engage the projection of the breech-piece with the shoulder in the receiver, a spring-stop *b* in the receiver below the said bar F, and a cam-like projection *e* on the said bar adapted to engage a corresponding projection *d* on the said spring-stop when the breech-piece is in the closed position, substantially as and for the purpose described.

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