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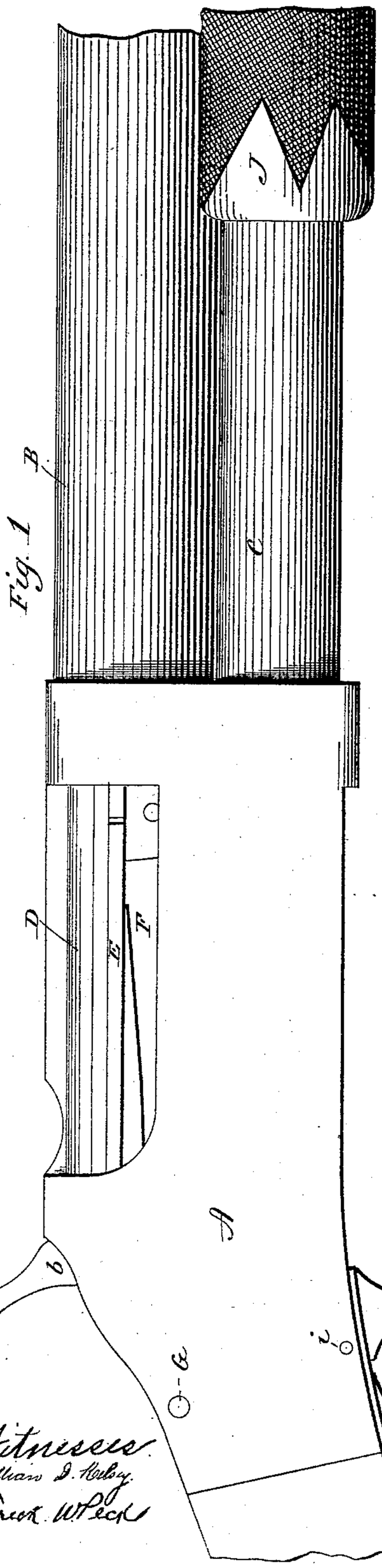
J. M. & M. S. BROWNING.

MAGAZINE GUN.

No. 441,390. Patented Nov. 25, 1890.



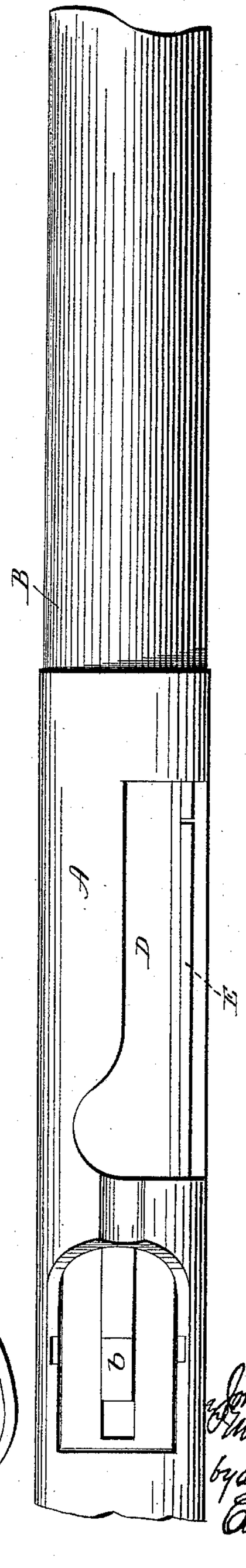


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Fig. 3.

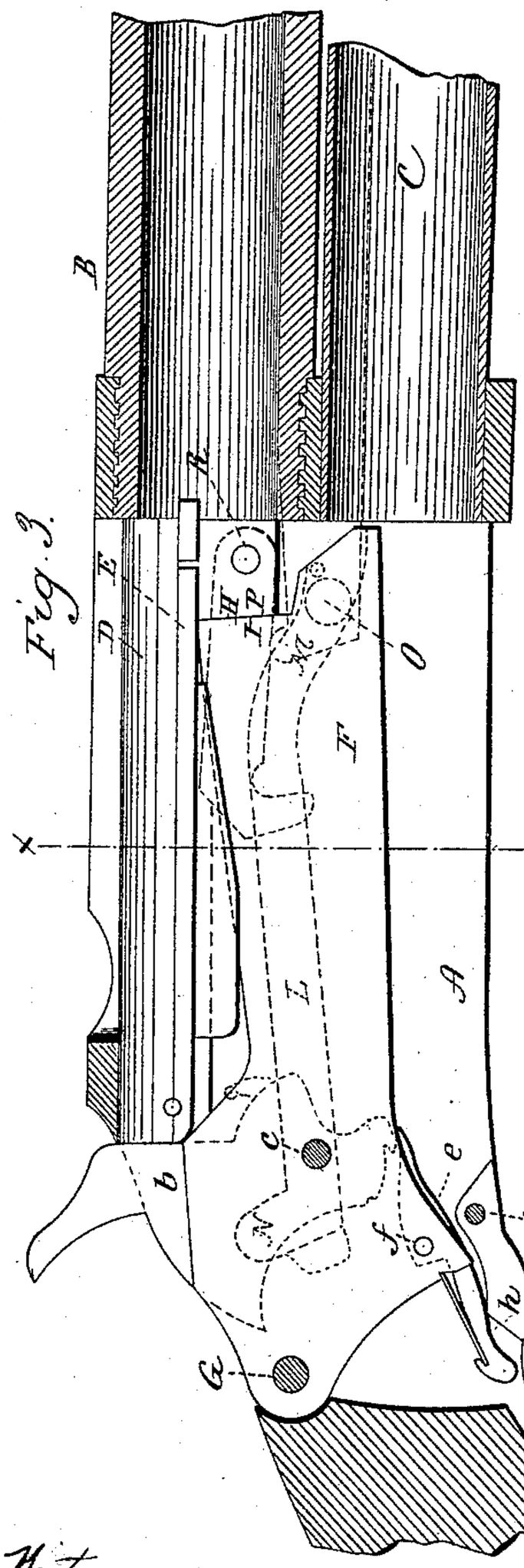

Fig. 3a.

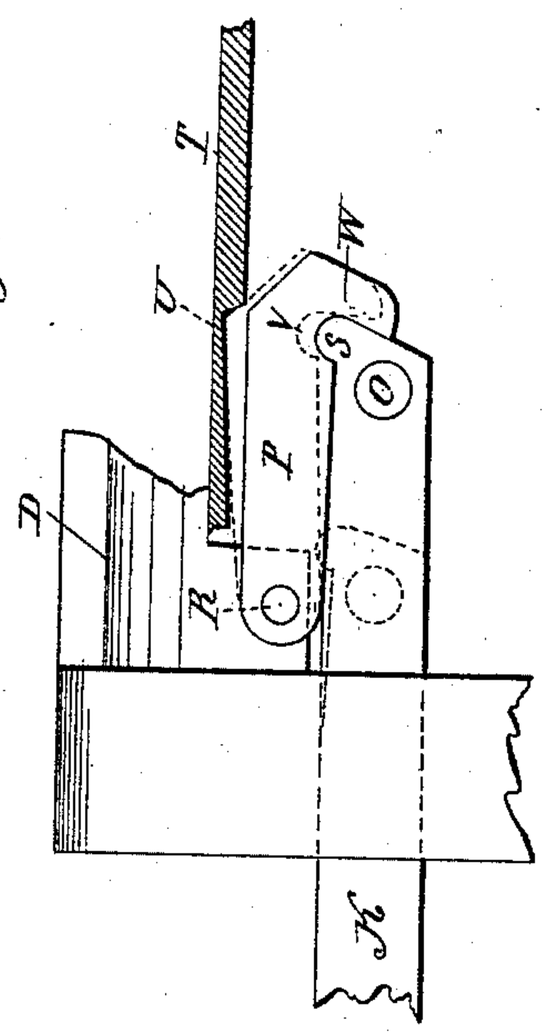

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Fig. 4

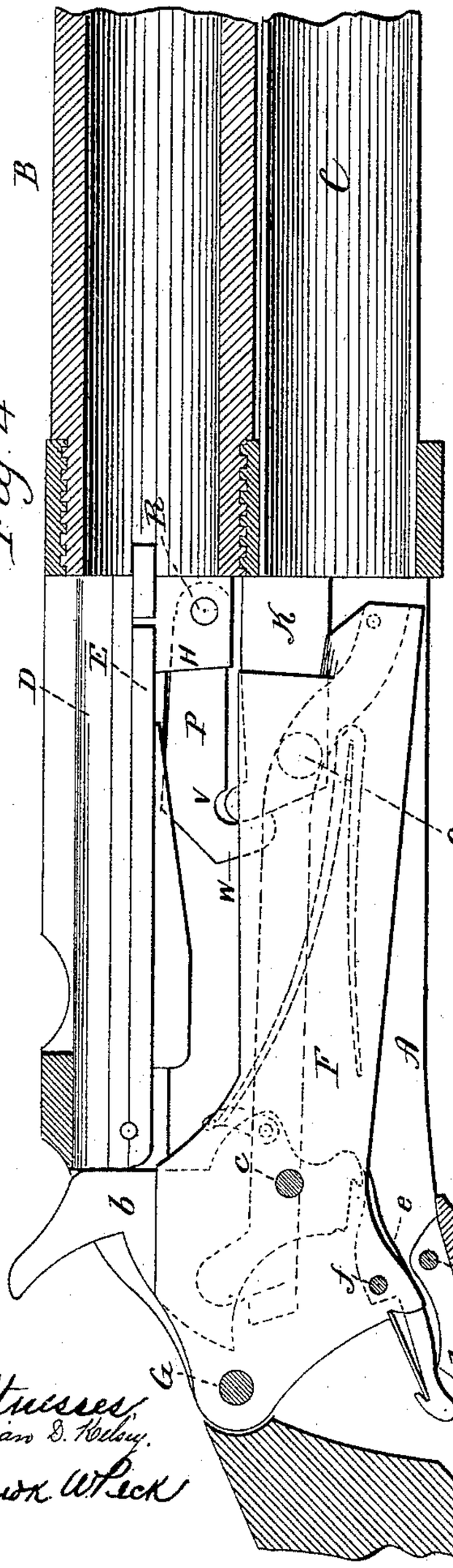

Fig. 5

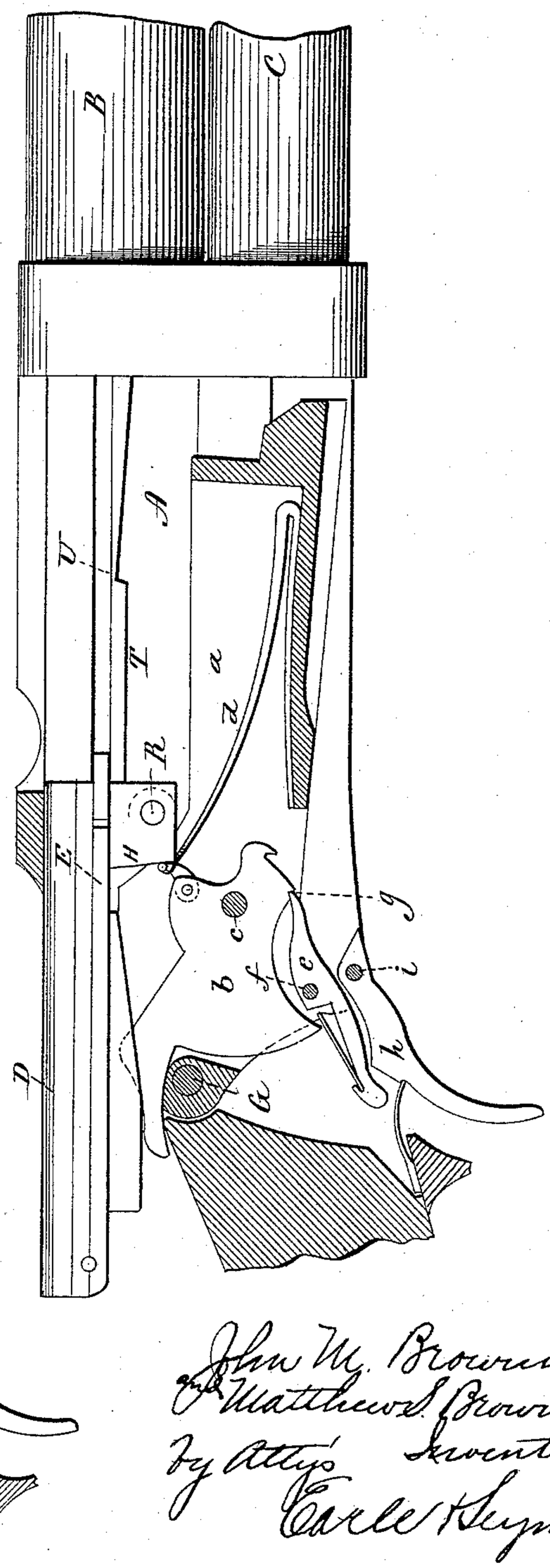

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Fig. 7

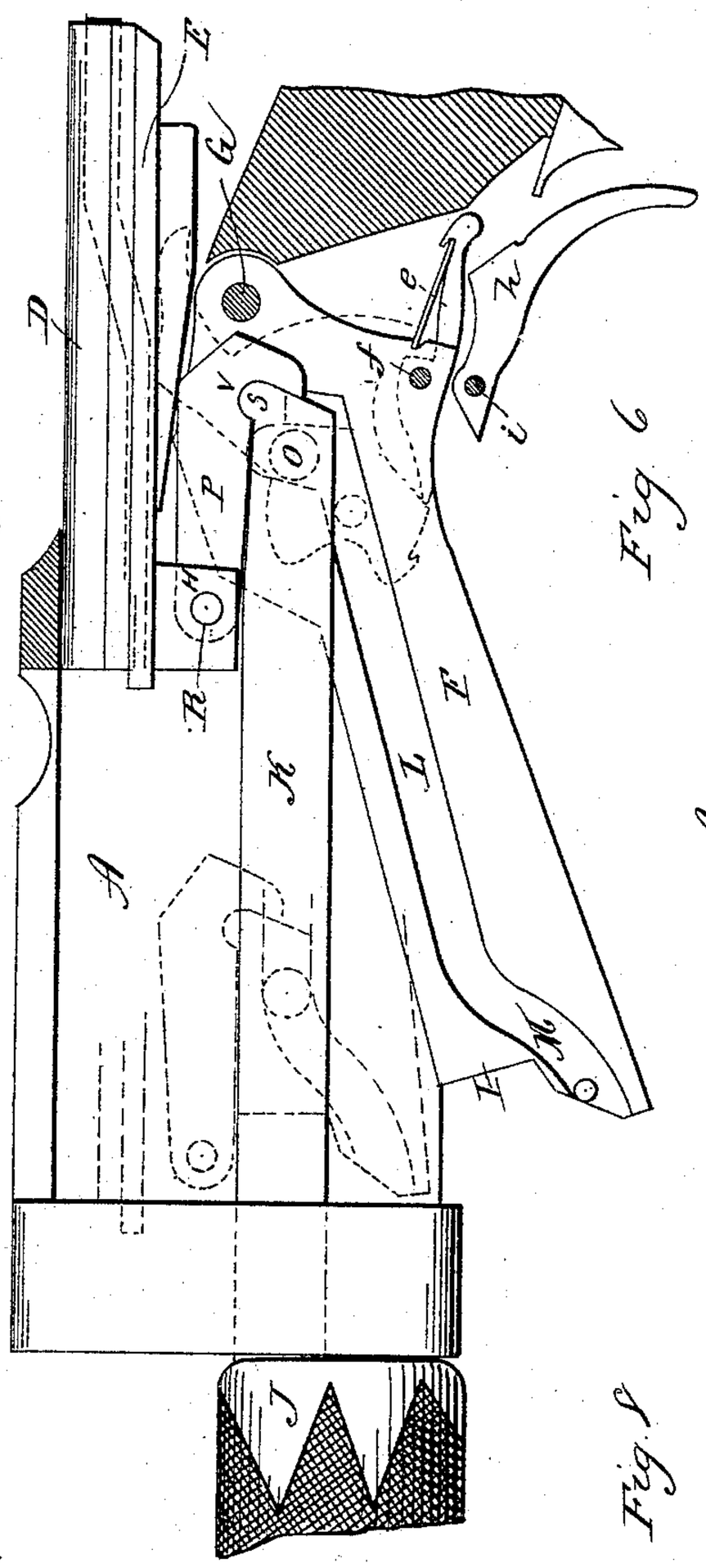


Fig. 6

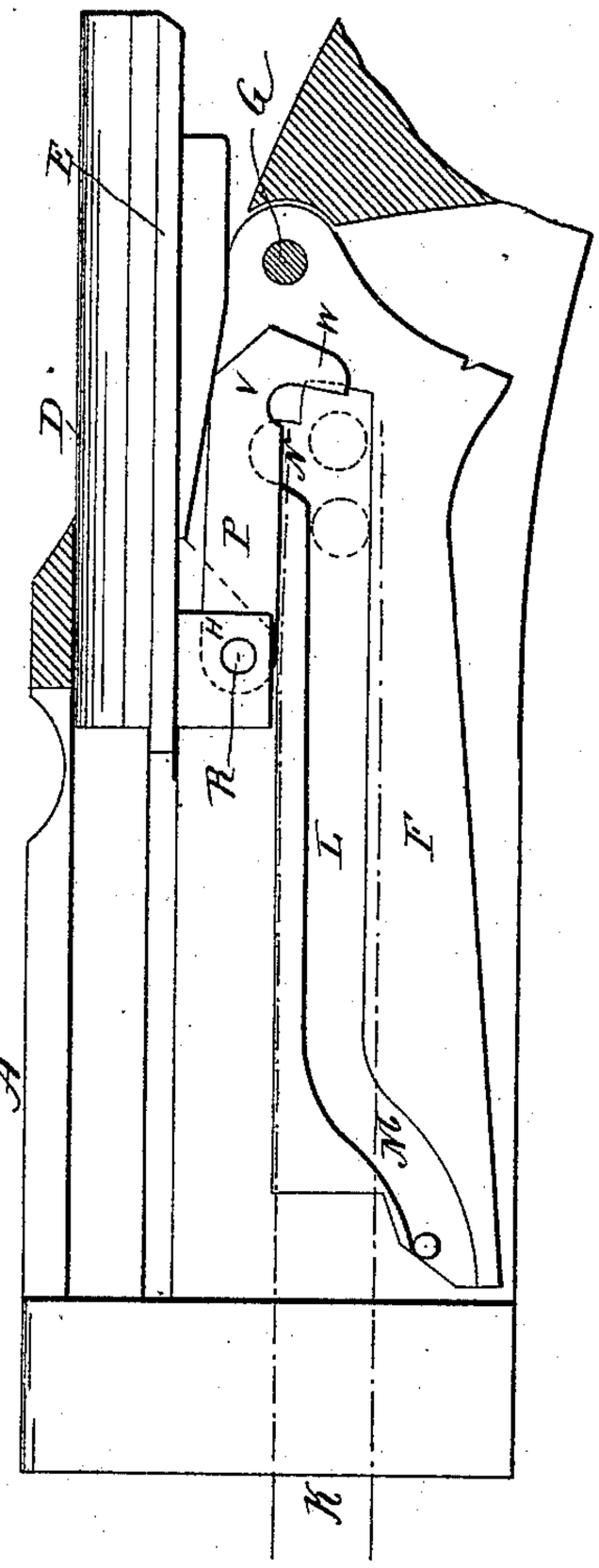
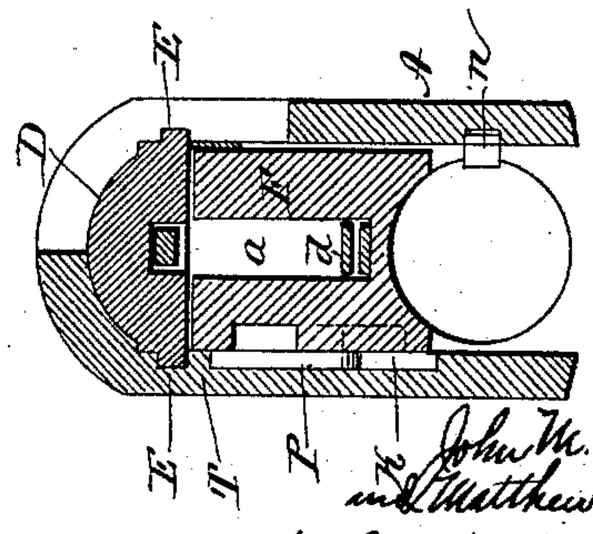


Fig. 8



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UNITED STATES PATENT OFFICE.

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MAGAZINE-GUN.

SPECIFICATION forming part of Letters Patent No. 441,390, dated November 25, 1890.

Application filed June 30, 1890. Serial No. 357,207. (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 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 side view of the arm, the stock and forward portions broken away for convenience of illustration; Fig. 2, a top view of the same; Fig. 3, a longitudinal section showing side view of the breech-piece and carrier; Fig. 3ª, a detached sectional view showing side view of the dog to illustrate its engagement and disengagement with the sliding bar; Fig. 4, the same as Fig. 3, showing the breech-piece closed, but the carrier dropped from the interlocking position; Fig. 5, a longitudinal section cutting through the carrier, showing side view of the lock mechanism and of the breech-piece, and the breech-piece as approaching its extreme rear position; Fig. 6, a side view representing the parts in the same position as in Fig. 4, showing a side view of the carrier; Fig. 7, the same as Fig. 6, showing the breech-piece in its extreme rear position and the carrier in its down position to receive a cartridge from the magazine; Fig. 8, a transverse section on line *x x* of Fig. 3.

This invention relates to an improvement in that class of magazine fire-arms in which the breech-piece is arranged to move longitudinally backward and forward in opening and closing the breech-piece, and in which the carrier is arranged below the breech-piece, adapted to rise and fall to take a cartridge from the magazine, present it forward of the front face of the open breech-piece, so that forward movement of the breech-piece will force the cartridge from the carrier into the barrel and the carrier return for a second cartridge. In the more general construction of this class of arms the breech-piece is locked by mechanism independent of the carrier.

The object of our invention is to adapt the carrier to serve also as the locking device to hold the breech-piece against recoil; and the invention consists, principally, in combining, with a longitudinally-movable breech-piece, a carrier arranged below the breech-piece and so as to move up and down in the receiver, adapted in its down position to receive a cartridge from the magazine, and in its up position to engage a shoulder on the breech-piece, as a brace to resist recoil, and the intermediate position of the carrier being such that the cartridge which the carrier shall receive from the magazine will be presented forward of the open breech-piece, so that the next forward movement of the breech-piece will force the cartridge from the carrier into the barrel, and as more fully hereinafter described.

A represents the receiver, to the forward end of which the barrel B is secured, and below the barrel is the magazine C, both arranged to open into the receiver at the rear, the magazine provided with the usual magazine-spring (not shown) operating to successively force the cartridges in the magazine rearward when free so to do. The receiver is constructed with a side opening, as seen in Figs. 1 and 2, for the escape of the exploded shells or cartridge if it be not exploded.

D represents the breech-piece, which is arranged in the receiver to slide longitudinally backward and forward, so as to close the breech in its forward position, and in the rear position to open the breech for the insertion of a fresh cartridge, as usual in this class of arms. The breech-piece is guided in the receiver by means of ribs E E on opposite sides of the breech-piece working in corresponding longitudinal grooves in the receiver, as seen in Fig. 8.

F represents the carrier, which, as illustrated, is hung upon a pivot G at the rear, and so as to swing up and down in the receiver, and beneath the breech-piece, as from the closed position seen in Fig. 3 to the wide-open position seen in Fig. 7, and return. The breech-piece is constructed with a shoulder H upon its under side and near its

forward end, and the forward end of the carrier is constructed with a corresponding surface I, adapted to bear against the shoulder H of the breech-piece when the parts are in the normal or closed position, as seen in Fig. 3. The bearing-points thus formed between the breech-piece and the carrier are substantially in line with the pivot on which the carrier is hung, and so that the carrier forms a strong locking-brace against the breech-piece when in its closed position and so as to resist recoil.

To unlock the breech-piece, so that it may be opened, the carrier is forced downward from its breech-supporting position so far that the shoulder of the breech-piece may escape and pass over the carrier when the rear movement of the breech-piece may be made, and as the breech-piece is again brought to the closed position the carrier is returned.

The best mechanism for operating the carrier and breech-piece is by means of a handle J, arranged forward of the receiver and so as to slide longitudinally, the handle being provided with a bar K, extending longitudinally rearward through the forward end of the receiver and working in a groove upon the inside of the receiver, as seen in Fig. 8.

The carrier F is constructed with a groove L on its side next the bar K, as seen in Figs. 6 and 7. This groove L is substantially parallel with the plane of the upper side of the carrier, and at its forward end is curved downward, as at M, Figs. 6 and 7, and at its rear end the groove has an upward turn N, as also seen in the same figures. The bar K is provided with a stud O, which works in the said groove and so that in the longitudinal movement of the carrier the said stud will work from end to end of this groove and impart a movement to the carrier corresponding to the shape of the groove. As represented in Fig. 3, the carrier is in the up or locked position, and in which position the stud O of the bar K stands in the lower end of the downwardly-curved portion M of the groove in the carrier, which serves to hold the carrier in the up or locking position. Now if the bar K be moved rearward the stud O acts upon that curved portion M of the groove in the carrier as a cam and operates to force the carrier down to the position seen in Fig. 4, and also seen in broken lines, Fig. 7. This brings the stud O into the straight portion of the groove L, and at this time the carrier is dropped so far below the breech-piece as to permit the breech-piece to escape the carrier, and the groove L then stands in a direct longitudinal position—that is, substantially parallel with the path of movement of the breech-piece, as seen in Figs. 4 and 5. The bar K continuing its rear movement, the stud O reaches the upturned portion N of the groove, when the carrier practically escapes the control of the bar K, and at this point the shoulder H of the breech-piece will strike a corresponding point on the carrier, as seen in Fig. 7, and force the carrier to its down position, the upturned portion N of the groove dropping onto the stud O. This brings the carrier to its extreme down position, as seen in Fig. 7, where it is adapted to receive a cartridge from the magazine. Immediately after the carrier has escaped from its locking of the breech-piece the breech-piece is forced rearward and so that it may throw the carrier down, as before described, and so that the cartridge may pass from the magazine onto the carrier and forward of the breech-piece. Now the forward movement of the bar K commences, and during the first part of such movement the stud O acts in the upturned portion N of the carrier-groove as a cam and forces the carrier from the extreme down position of Fig. 7 into the level or intermediate position seen in Fig. 6, the stud O being represented in broken lines as just entering the rear end of the straight portion of the groove in the carrier. This movement will bring the cartridge into a position forward of the front face of the breech-piece. Then the forward movement of the breech-piece commences moving with the bar K, and the stud O travels through the straight part of the groove L, as the breech-piece moves forward, so that the carrier rests while the breech-piece is so moving forward and until the breech-piece has reached its extreme forward or closed position, as seen in Fig. 4. Then the stud O passes into the downwardly-curved portion M of the groove, and operates therein as a cam to raise the carrier into the locking position, as seen in Fig. 3.

To operate the breech-piece, a vertically-swinging dog P is hung to the breech-piece upon a pivot R. (See Figs. 7 and 3ª.) This dog works in the same plane as the bar K. The rear end of the bar K is constructed with a nose S upon its upper side, which normally stands below the dog and near its pivot, as seen in Fig. 3. The dog is now in the raised position, as seen in Fig. 3ª, it working beneath a longitudinal rib T in the side of the receiver, the rib having a recess U at its forward end, into which the dog may rise and stand, as seen in Fig. 3ª, when the breech-piece is in the closed position. As the bar K is forced rearward to produce the first downward or unlocking movement of the carrier, it moves rearward from the position seen in broken lines, Fig. 3ª, to that shown in full lines, same figure, without engagement with the dog, and when the bar K has reached this position the carrier has been thrown down out of engagement with the breech-piece. At this point the dog is constructed with a notch V, corresponding to the nose S of the bar K, and so that the dog may then drop upon the bar, and so as to escape the recess U in the rib T. The nose W of the dog stands in rear of the rear end of the bar K, and so as to now be engaged by that rear end, as seen in Fig. 3ª. From this point the rear movement of the bar K will, because of its connection with the dog P, cause the

breech-piece to move rearward with it to the extreme open position, the rib T serving to hold the dog and bar in engagement through such rear movement, and this engagement of the dog and bar continues until on the return of the bar K the breech-piece reaches its fully-closed position, and the dog arrives at the recess U in the rib, so that it may escape from its engagement with the bar K and permit the completing of the forward movement of the bar K to bring the carrier into the locking position, as before described.

The breech-piece is provided with the usual firing-pin, as represented in broken lines, Fig. 7, which may be struck by the hammer, arranged in the usual manner for this class of fire-arms; but we prefer to arrange the lock mechanism in the carrier itself. This arrangement of the lock mechanism is represented in Figs. 4 and 5.

The carrier is constructed with a vertical longitudinal recess *a*, forming a lock-chamber. The hammer *b* is hung in this recess upon a transverse pivot *c*, and so that when the carrier is in the locking position, as seen in Fig. 4, the nose of the hammer may strike the firing-pin and stand in rear of the breech-piece. In the recess *a* of the carrier the main-spring *d* is arranged to operate upon the hammer in the usual manner of operating main-springs in other constructions of locks. The sear *e* is also hung in the carrier upon a transverse pivot *f* and adapted to engage a locking-notch *g* on the hammer in the usual manner, as seen in Fig. 5. The trigger *h* is hung in the receiver upon a pivot *i* below the carrier. The unlocking movement of the carrier, as seen in Fig. 4, leaves the hammer still against the rear end of the breech-piece, and so that as the breech-piece is moved rearward it operates against the face of the hammer, forcing the hammer rearward into its cocked position, as from the position in Fig. 4 to that seen in Fig. 5, where the hammer will be engaged by the sear *e*, as seen in Fig. 5. Then as the breech-piece returns and the carrier is brought to the locked position the hammer remains in the cocked position, from which it may be disengaged by the usual pull of the trigger, or the hammer may be operated by hand for release or cocking, as usual in locks of this class.

The breech-piece is provided with the usual cartridge-retractor, (not necessary to be particularly described,) the extracting devices being arranged with reference to the position of the discharge-opening through the receiver in the usual manner for arranging such extracting devices. This opening may be a side opening, as shown, or any of the usual constructions.

While preferring the longitudinally-sliding handle and its connecting-bar as a means for operating the breech-piece and carrier, it will be understood that any of the known mechanisms for operating the breech-piece and carrier may be substituted therefor.

The advantages of arranging the lock mechanism in the carrier, whereby the simple removal of the carrier will take the entire lock mechanism from the arm, are too apparent to require to be particularly set forth.

The magazine is charged, when the parts are in the closed or normal position, through the under side of the receiver, and the receiver is provided with a spring-latch *n*, Fig. 8, to engage the rear end of the cartridges as they are successively passed into the magagine—a common arrangement, not necessary to be particularly described. The under side of the breech-piece is recessed, as seen in Fig. 8, so as to form a chute to properly conduct the cartridges into the magazine.

Other known forms of carrier may be substituted for that shown, the essential feature of the carrier being that it shall first receive an unlocking movement to disengage the breech-piece and that in rising after it has received the cartridge from the magazine it shall come to a position to present that cartridge in line with the barrel, and after the forward movement of the breech-piece has transferred the cartridge from the carrier the carrier will receive a final upward breech-locking movement.

We claim—

1. In a magazine fire-arm in which the magazine is arranged beneath the barrel and both the barrel and magazine open into the receiver at the rear, the combination therewith of a longitudinally-movable breech-piece, a carrier arranged below the breech-piece, the breech-piece constructed with a shoulder, and the carrier with a corresponding bearing-surface with mechanism, substantially such as described, to impart to the carrier an up-and-down movement and so as to bring the said bearing-surface of the carrier against the said shoulder of the breech-piece when the breech-piece is in its forward or closed position.

2. In a magazine fire-arm in which the magazine is arranged below the barrel and both barrel and magazine opening into the receiver at the rear, the combination therewith of a longitudinally-movable breech-piece, a carrier hung at the rear and extending forward below the breech-piece so as to swing in a vertical plane, the breech-piece constructed with a shoulder and the carrier with a corresponding bearing-surface adapted to engage said shoulder on the breech-piece when the breech-piece is in the closed position, mechanism, substantially such as described, to impart a downward-swinging movement to the carrier to disengage the breech-piece and then force the breech-piece to its rear position and bring the carrier to its extreme down position to receive a cartridge from the magazine, the said mechanism operating to return the carrier to a position below the path of the breech-piece to bring the cartridge thereon into line with the barrel forward of the front face of the breech-piece and there rest while the breech-piece moves forward to force the car-

tridge into the barrel, and finally to raise the carrier into the locking position after the breech-piece shall have reached its extreme forward position, substantially as described.

3. In a magazine fire-arm substantially such as described, the combination therewith of a longitudinally-movable breech-piece D, a dog P, hung to said breech-piece and so as to swing in a vertical plane, the receiver constructed with a rib T, beneath which said dog may move in the forward-and-back travel of the breech-piece, the said rib constructed with a recess U, corresponding to the extreme forward position of said dog, a carrier F, hung at the rear below the breech-piece and so as to swing in a vertical plane, the carrier constructed with a longitudinal groove L on its side, curved downward at the forward end and turned upward at the rear end, the breech-piece constructed with a shoulder and the carrier with a corresponding surface adapted to engage said shoulder of the breech-piece when the breech-piece is in the said forward position, and a longitudinally-sliding bar K, working through the forward end of the receiver and provided with a handle forward of the receiver, the said bar provided with a stud adapted to work in said groove, and also adapted to engage said dog after the carrier shall have been forced out of its locking position, and so as to impart rear and forward movement to the breech-piece and be disengaged from said dog when in the forward movement the breech-piece reaches its closed position, substantially as described.

4. In a magazine fire-arm substantially such as described, the combination of a longitudinally-movable breech-piece, a carrier hung at the rear below the breech-piece and so as to swing in a vertical plane, the carrier constructed with a longitudinal groove in its side, the said groove turned downward at its forward end and upward at its rear end, the breech-piece constructed with a shoulder, and the carrier with a corresponding bearing-surface adapted to engage said shoulder on the breech-piece when the carrier is in the closed position, a longitudinally-sliding bar working through the forward end of the receiver, and provided with a handle forward of the receiver, the bar also provided with a stud adapted to work in said groove of the carrier, and mechanism, substantially such as described, between the breech-piece and the said bar, whereby the said bar will engage the breech-piece when the carrier has been dropped to unlock the breech-piece and to escape from the connection with the breech-piece when the breech-piece has reached its extreme forward position, substantially as described.

5. In a magazine fire-arm substantially such as described, the combination of a longitudinally-movable breech-piece, a carrier hung below the breech-piece and so as to swing in a vertical plane, the carrier constructed with a recess forming a lock-chamber, with the hammer and lock mechanism arranged in the said chamber of the carrier, substantially as described.

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