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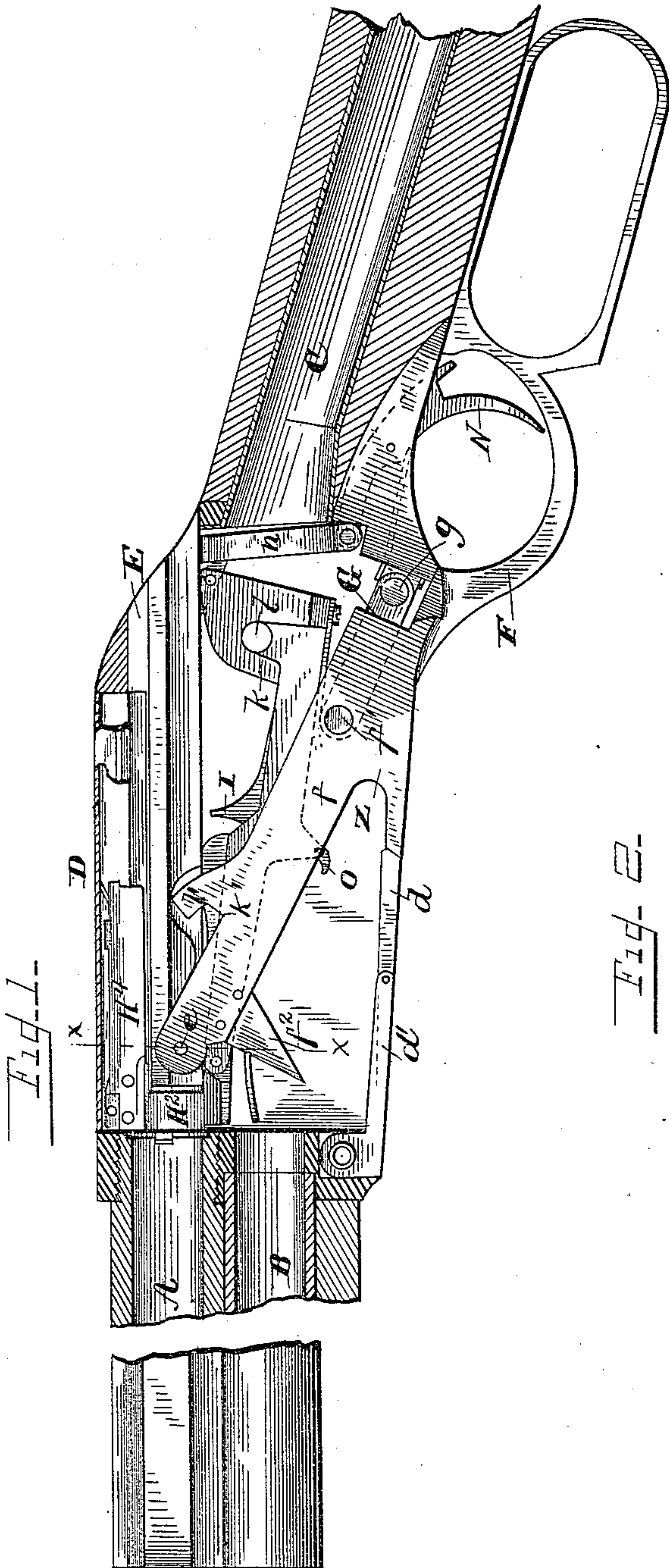
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J. M. REAMS & W. L. HORNE.

MAGAZINE FIRE ARM.

No. 406,667.

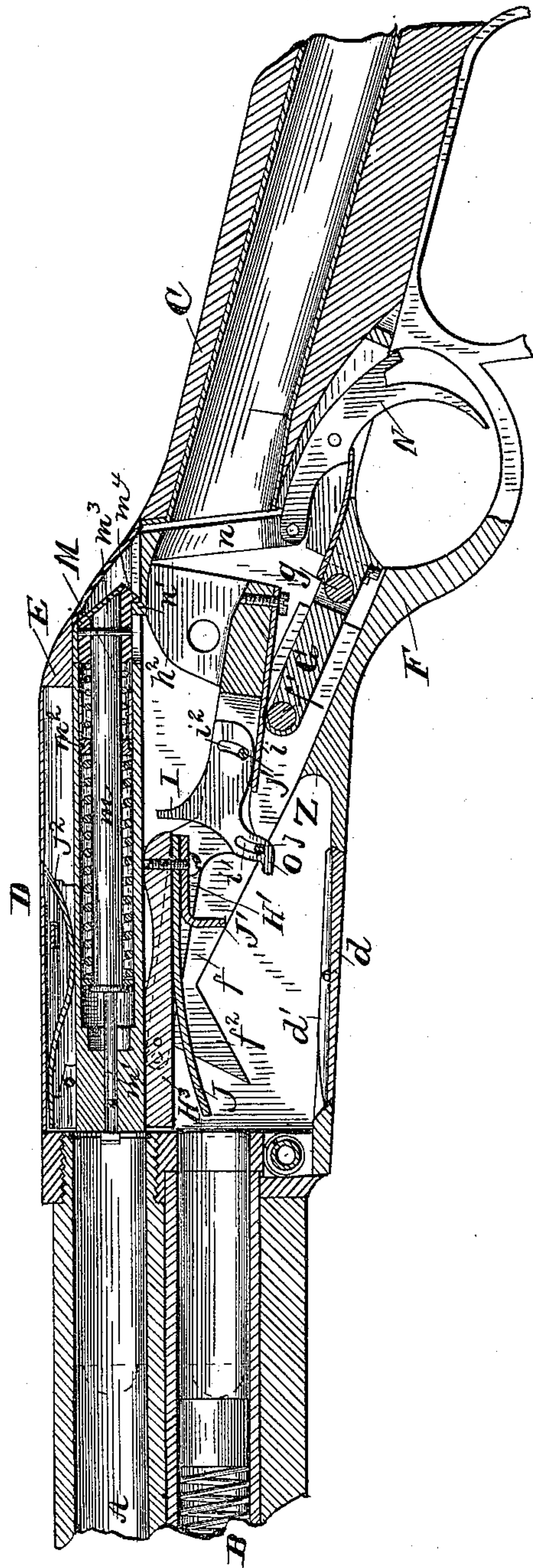
Patented July 9, 1889.



Witnesses

G. A. Tauberschmidt

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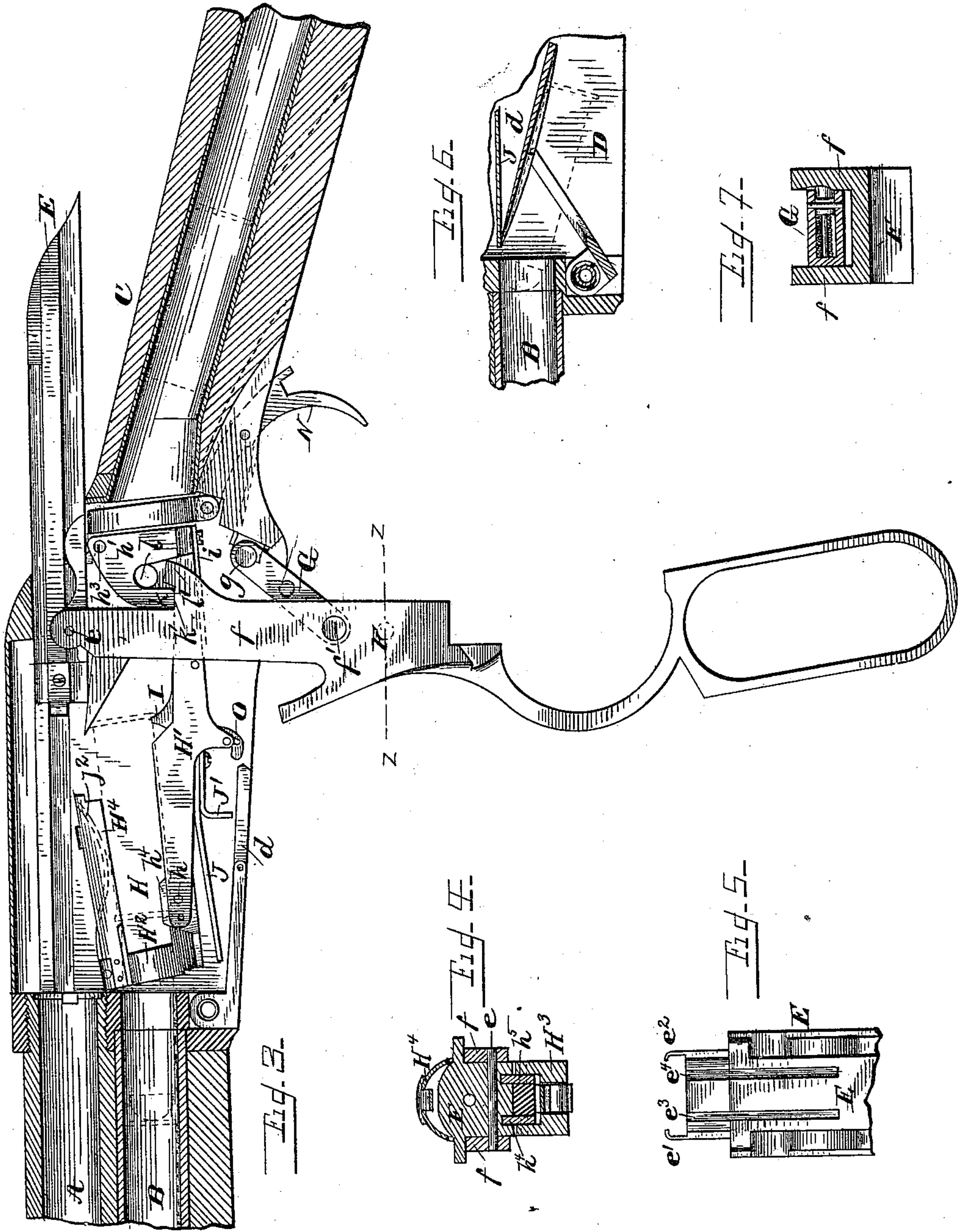
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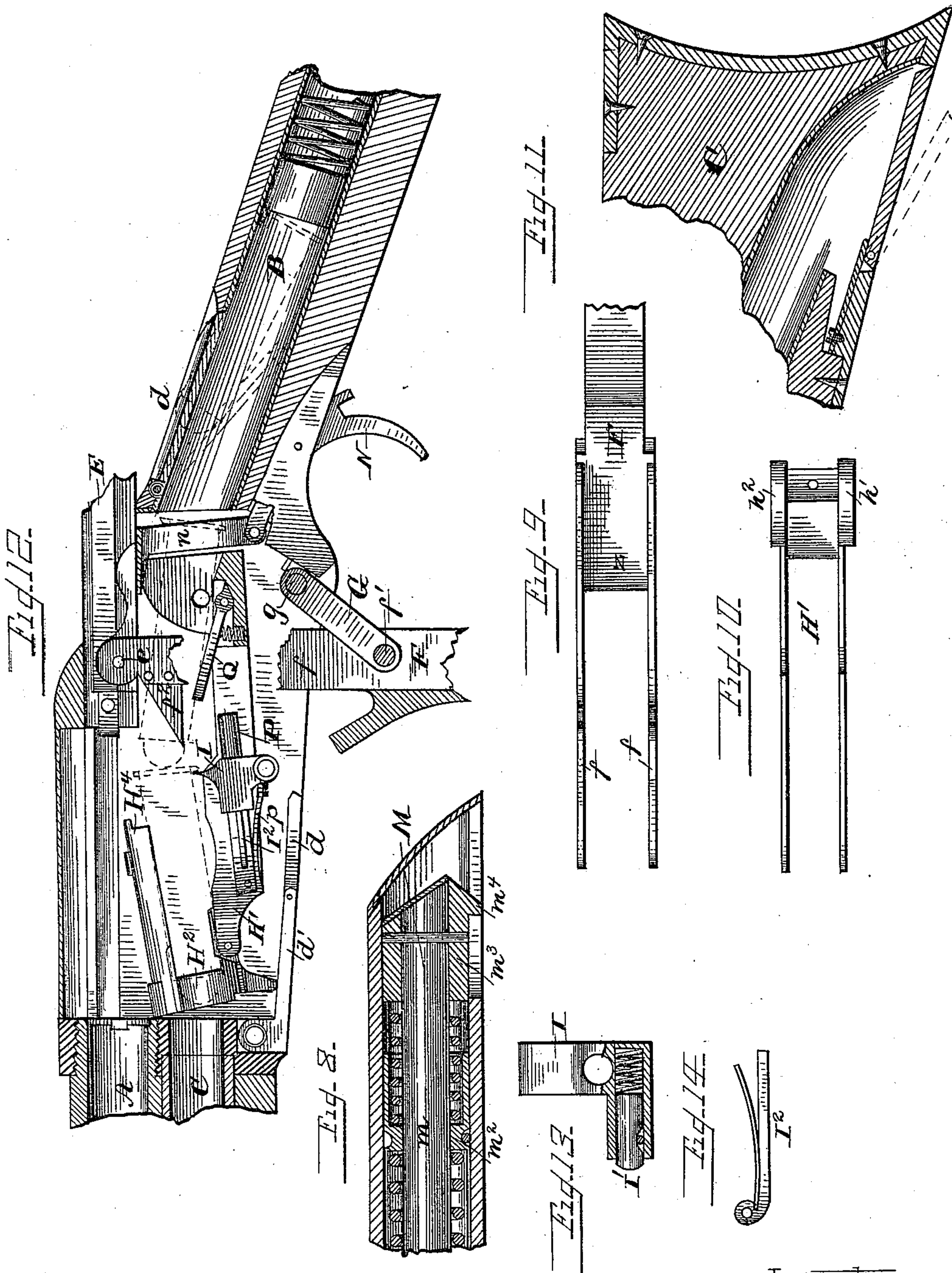
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UNITED STATES PATENT OFFICE.

JOSEPH M. REAMS AND WILLIAM L. HORNE, OF MERIDEN, CONNECTICUT.

MAGAZINE FIRE-ARM.

SPECIFICATION forming part of Letters Patent No. 406,667, dated July 9, 1889.

Application filed July 5, 1888. Serial No. 279,079. (No model.)

To all whom it may concern:

Be it known that we, JOSEPH M. REAMS and WILLIAM L. HORNE, citizens of the United States, residing at Meriden, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Magazine-Guns; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to magazine-guns, and is an improvement in that class of magazine-arm wherein a bolt or breech-block has a reciprocating movement in line with the barrel; and our invention consists in certain details of construction and combination of parts whereby certain desirable results are accomplished.

The best form in which we have contemplated embodying our invention is illustrated in the accompanying drawings, and is disclosed in the following specification and claims.

Figure 1 is a central vertical section of the barrel, magazine, and stock, with the parts within the receiver shown in elevation when the gun is ready for firing. Fig. 2 is a central vertical section through barrel, magazine, receiver, and stock with the parts in a like position. Fig. 3 is a view similar to Fig. 1 with the cartridge-carrier in position to receive a cartridge from the magazine. Fig. 4 is a transverse vertical section through the cartridge-carrier and breech-bolt on line $x x$, Fig. 1. Fig. 5 is a view of the under side of the front part of the breech-block. Fig. 6 is a sectional view showing the action of the cover of the charge-opening. Fig. 7 is a section of the operating-lever on line $z z$, Fig. 3, showing the construction of the spring locking-pin. Figs. 8, 9, 10, and 11 are detail views of parts of the mechanism. Fig. 12 is a view, partly in section, of a modified form of construction. Figs. 13 and 14 are detail views of parts of the same.

In the drawings, A is the barrel, B is the magazine, C the stock, and D the frame or receiver connecting the stock, barrel, and magazine, and in which is located the mechanism for receiving the cartridges from the magazine and placing them in the barrel and

for ejecting the cartridge-shells after firing and the mechanism auxiliary thereto.

E designates the sliding breech-bolt, which is mounted and moves in suitable guides in the receiver D. The operating-lever F is forked or bifurcated at its upper end and the forked arms $f f$ enter recesses in the opposite side of the breech-bolt and are pivoted to the latter by the pin e , as best shown in Fig. 4. These forked arms of the lever are of a flattened form and extend rearwardly of the point Z of their junction with the main part of the lever. I may provide the forked arms of the lever F with projections f^2 , which form guides for the cartridge as it enters or leaves the receiver D. The lever F is fulcrumed to a link G by a pivot f' passing through the rearwardly-extending portions of the forked arms, so that when the lever is in its closed position the link lies partly between these portions, as best seen in Fig. 2. The link G is pivoted to the receiver at g . By means of the link G the lever is furnished with a movable fulcrum, so that in its movement to retract the breech-bolt the lever has the necessary compound movement to permit the breech-bolt to move backward in line with the barrel.

H is the cartridge-carrier, and H' is the carrier-lever. The forward end of this lever is also bifurcated and is pivoted to the carrier at h . The rear end of this lever is provided with two upwardly-extending ears $h' h^2$, with a space between them sufficient for the passage of a cartridge. The upper ends of these ears are pivoted by short pivots to the sides of the receiver, as shown at h^3 . To the under side of the rear portion of this lever is attached a spring i , and between the arms of the lever is placed a cartridge-stop I. This stop is formed, as shown in Fig. 2, with two curved slots $i' i^2$, and it is supported in position by the spring i and the two bolts or pins $j j'$, passing through the slots. The shape of the slots in the stop I is such that the stop may have a movement against the force of the spring i upon either of the rods $j j'$ as a center for the extent of the other slot. The carrier H is best shown in Fig. 3, and it consists of the ring-shaped head H^2 , the rearwardly-extending base H^3 , and the top H^4 , all rigidly connected. To the under side of the base are

attached the cartridge-stop J and the carrier-stop J'. The latter serves to limit the downward movement of the carrier, while the former serves to prevent the cartridge just within the magazine from being forced within the receiver. The upper side of the base H³ is provided with two short projections h⁴ and h⁵, (best seen in Fig. 4,) which serve to keep the cartridge in proper position to enter the barrel. To the under side of the top H⁴ is attached the curved spring j². The function of this spring is to keep the cartridge down against the projections h⁴ and h⁵ and the base, so as to insure its contact with the cartridge-stop I, and it also insures accuracy in respect to the position of the carrier when the cartridge is being forced into the barrel.

On the outside of the ears h' h² are the recesses l and the projections k. (Best seen in Figs. 1 and 3.) The lever F is provided with projections l' (the forward portions of which are included and form a cam-surface) and recesses k'. When the breech-block is thrown to its most rearward position, these parts occupy the positions in which they are shown in Fig. 3, in which the lever H is prevented from further downward movement, while the lever F is held from accidental displacement.

The breech-block, as before stated, moves in guides in the receiver, and is provided at its front end with a cartridge-extractor, consisting of the rigid hooks e' e². (Best seen in Fig. 5.) The under side of the forward portion of the breech-bolt is provided with two grooves e³ e⁴, to engage the projections h⁴ and h⁵ of the carrier.

The breech-bolt is hollow for the greater part of its length, and is provided with the solid head E', having a perforation there-through for the passage of the point of the firing-pin, and at its other end with a closing slide or cap. The firing-pin M occupies the hollow portion of the block E, and consists of the spindle m, provided with the reduced point m'. A coiled spring surrounds the spindle m and engages a collar on some part of the same near the point m' and a collar or ring m² near the other extremity of the spindle. This ring is provided with apertures engaging pins which pass through said ring and the walls of the block E, securing it rigidly to the breech-block. The spindle slides freely through the ring m², and is provided at its rear end with a head m³, connected thereto by means of a pin passing through both parts. This head is formed with a projection m⁴, extending through a slot formed in the bottom of the breech-block. Between the ring m² and the inner face of the head m³ is a retraction-spring, which serves to keep the point of the firing-pin a little in the rear of the end of the cartridge. The retraction-spring is shorter and, preferably, slightly stronger than the actuating-spring. The trigger N is pivoted in the usual manner, and a ring or yoke n is pivotally attached to its inner end, forming the sear, and having a central aperture suffi-

ciently large to admit of the passage of a cartridge. The upper portion of this yoke or sear is provided with a projection n', which engages the projection m⁴ on the head of the firing-pin. The yoke is held from movement in line with the barrel by engaging slots or grooves in the sides of the frame or in any other desired way. As the breech-block is moved forward to close the breech, the projection on the head of the firing-pin will engage the projection n' of the sear, and as the block E is forced farther forward the actuating-spring on the spindle m will be compressed. A slight pull on the trigger N will draw down the yoke n and disengage the firing-pin, which will move forward with great momentum and explode the cartridge. In so doing the strength of the actuating-spring will be weakened by expansion, and the retraction-spring will draw the spindle back to its normal position. We prefer to employ a stiff actuating-spring and move the spindle a very slight distance.

In the lower face of the frame D we provide a hinged door d. (Best seen in Fig. 6.) This door is swiveled in arms d', which are pivoted on a pin passing through the casing of the frame. A spring is attached to the said arms in such a manner as to hold the door normally closed. The magazine B is provided with the usual spring and plunger for feeding the cartridges, and the stock is provided with a tubular passage for the exit of the same. The shells may pass through the stock and be taken out by opening a door or slide at the end of the butt, as seen in Fig. 8; or they may be discharged from the lower side of the stock directly, as indicated in dotted lines, Fig. 3.

The operation is as follows: The cartridges are placed in the magazine, as shown in Fig. 6, until it is filled. The lever F is then pressed downwardly until it occupies the position shown in Fig. 3, when one of the cartridges will be forced into the carrier H and be arrested by the cartridge-stop I. The lever F is then drawn up to its normal position. As the upper end of the lever begins to move toward the barrel, the cam-surfaces of the projections l' will engage the projections k of the carrier-lever and raise the carrier. As the carrier is raised, the cartridge-rim will enter between the arms of the extractor, and when raised in line with the barrel the forward movement of the breech-block will push the cartridge into the barrel, and at the same time compress the spring actuating the firing-pin. When the cartridge-carrier is raised by the lever F, the cartridge-stop I will lie below the base of the carrier and out of the path of the cartridge. After the cartridge has been discharged and the lever is again pressed down the breech-block will be moved to the rear, the arms e' e² withdrawing the cartridge-shell and allowing it to fall with the carrier H, so that the rim of the shell falls to the rear of the stop I. As soon as the lever reaches

the lowest position a cartridge from the magazine will enter the carrier and force the shell out through the tubular passage into the butt of the stock or upon the ground, as desired. This operation is repeated until all of the cartridges have been discharged, when the magazine may be refilled, as before described.

The link G is preferably provided with a projection (shown in Fig. 7) held in its outward position by a spring. This projection engages a shallow groove in the inner face of one of the forked arms of the lever F, and holds the lever by frictional contact, when in its normal condition, against accidental displacement. The cartridge-stop I is preferably provided with a projection O, serving as a finger-piece, which may be depressed by raising the lid d, and the cartridges fed entirely through the gun and removed from the same when desired. This finger-piece can be actuated only when the lever F is in the position shown in Fig. 3, and the lid d may not be moved at all unless found necessary.

In Figs. 12, 13, and 14 we have illustrated a modified form of our invention, in which the course of the cartridge through the gun is substantially the reverse of that in the form just described. In this form of our invention we locate the magazine B in the stock of the gun, and below the barrel A we form a tubular receptacle C, into which the shells are discharged. The lever F, breech-block E, and cartridge-carrier H are of substantially the form before described.

To the carrier-lever H' is pivoted a rod P, the free end of which is provided with a cylindrical portion, on which is mounted the cartridge-stop I. This rod is held in position by a spring p, attached to the lever H' and bearing against the lower side of the rod, thus forming a yielding support for the same. The stop I is provided with a friction-stud I', as shown in Fig. 13, which is capable of a slight movement, but is held normally in its outward position by means of a spring. This stud engages a shallow groove in the inner face of one of the forked arms of lever F, and as the lever is forced forward, closing the breech, the stud will be engaged and the stop removed from engagement with the cartridge. When the lever is actuated to open the breech, the stud being in engagement with the lever, the stop will be drawn back a short distance, sliding on the cylindrical portion of the rod P, thus allowing the rim of the empty shell to fall in advance of the stop. As the next cartridge is advanced from the magazine, it will force the shell into the receiver C and move forward until its rim is engaged by the stop I, which will be forced back to its normal position. A stop I², of any preferred construction, is provided to limit the forward movement of the cartridge-stop, and in this instance consists of a tongue I², which is mounted in a slot or groove in the rod P and

has one end pivoted to the said rod. A spring tends to keep the tongue in position to engage the stop I when forced forward by the incoming cartridge or by the lever F. The magazine in this modified construction is located in the stock or butt of the gun, and is filled through a hinged door d, formed, preferably, in the top of the stock, as shown in Fig. 12. A guide Q, pivoted to the lever H³, guides the cartridge as it enters the portion D of the gun.

The operation is as follows: The lever F is thrown forward, when the breech-block will be drawn back and the carrier H depressed, as in the form first described. A cartridge is fed forward until its rim is engaged by the stop I. When the lever F is drawn back, the carrier is raised, and the cartridge, being made to engage the arms e' e² of the breech-block, is forced forward into the barrel. After the cartridge has been discharged the lever F is again thrown forward and the carrier again depressed. As the lever is moved, the stop I will be drawn backward a short distance, so that when the shell leaves the cartridge-extractor it will fall with its rim in advance of the stop. The incoming cartridge will force the shell into the chamber C and will be arrested by the stop I, when the operation will be the same as just described. The top of the receiver is closed to exclude moisture and any other material which might injure the mechanism. A slide or cover is preferably used for this purpose to permit of ready access to the working parts when desired.

What we claim, and desire to secure by Letters Patent, is—

1. In a magazine-gun provided with a cartridge-discharge in the rear of the receiver, the combination, with a sliding breech-bolt, of a guard-lever pivoted thereto and a cartridge-carrier, said guard-lever having a cartridge-passage through the same, substantially as described.

2. In a magazine-gun, the combination, with the cartridge-carrier and sliding breech-bolt, of the bifurcated guard-lever and the carrier-lever provided with pivoting-ears with a cartridge-passage between them, substantially as described.

3. In a magazine-gun provided with a cartridge-discharge in rear of the receiver, the combination, with cartridge receiving and operating devices having a longitudinal cartridge-passage, (a firing-pin being located above the said passage,) of a trigger and a sear, also having a cartridge passing through the same, substantially as described.

4. The combination, with the cartridge-carrier and its supporting-lever, of a cartridge-stop on said lever yielding in a rearward and downward direction, substantially as described.

5. The combination, with the cartridge-carrier and its supporting-lever, of a cartridge-stop yielding in a rearward and downward

direction and a spring for returning said stop after a movement in either direction, substantially as described,

6. In a magazine-gun provided with a cartridge-discharge in rear of the receiver, a cartridge-carrier and a cartridge-carrier lever, a passage for the cartridge through the receiver above the main body of said lever, and a cartridge-stop on said lever yielding in a rearward and downward direction, substantially as described.

7. The combination, with the cartridge-lever, of the cartridge-stop provided with two curved slots, a connection with the lever through each slot, and a spring forcing the bottoms of said slots against said connections, substantially as described.

8. In a magazine-gun having the magazine below the barrel, the combination, with a cartridge-carrier and a cartridge-discharge in the rear of said carrier, of a yielding cartridge-stop provided with a finger-piece, whereby the same may be operated to permit the free removal of the cartridges from the magazine, substantially as described.

9. The combination, with the bifurcated guard-lever, of the link pivoted to the lever and to the receiver and provided with the spring securing-pin adapted to engage the lever, substantially as described.

10. The combination, with the bifurcated guard-lever having a recess in one of its arms, of the link pivoted between the arms to the receiver and provided with the spring-actuated pin adapted to engage the securing-recess of the arm, substantially as described.

11. The combination, with the guard-lever provided with a locking-recess, of the car-

tridge-carrier and the carrier-lever provided with projections adapted to engage the locking-recesses of the guard-lever when in its open position, whereby the said parts are held against accidental displacement when in an open position, substantially as described.

12. The combination, with the guard-lever provided with the locking recesses and cams, of the cartridge-carrier and carrier-lever, the latter provided with projections adapted to engage the locking-recesses of the guard-lever in front of the cams, substantially as described.

13. In a magazine-gun provided with a cartridge-discharge in rear of the receiver, the combination, with the cartridge-carrier, of the bifurcated guard-lever, each arm of said lever being provided with a cartridge-guide, substantially as described.

14. The combination, with a magazine-gun, of a device for closing the charge-opening of the same, consisting of a pivoted spring-actuated lever and a closing-plate pivoted to said lever, substantially as described.

15. The combination, with a magazine-gun, of a device for closing the charge-opening of the magazine, consisting of a bifurcated spring-actuated lever and a closing-plate pivoted between the arms of said lever, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

JOSEPH M. REAMS.
WM. L. HORNE.

Witnesses:

L. P. WHITAKER,
W. R. MACK.