(No Model.) 4 Sheets—Sheet 1.

J. J. SPEED.

MAGAZINE FIRE ARM.

No. 406,787. Patented July 9, 1889.

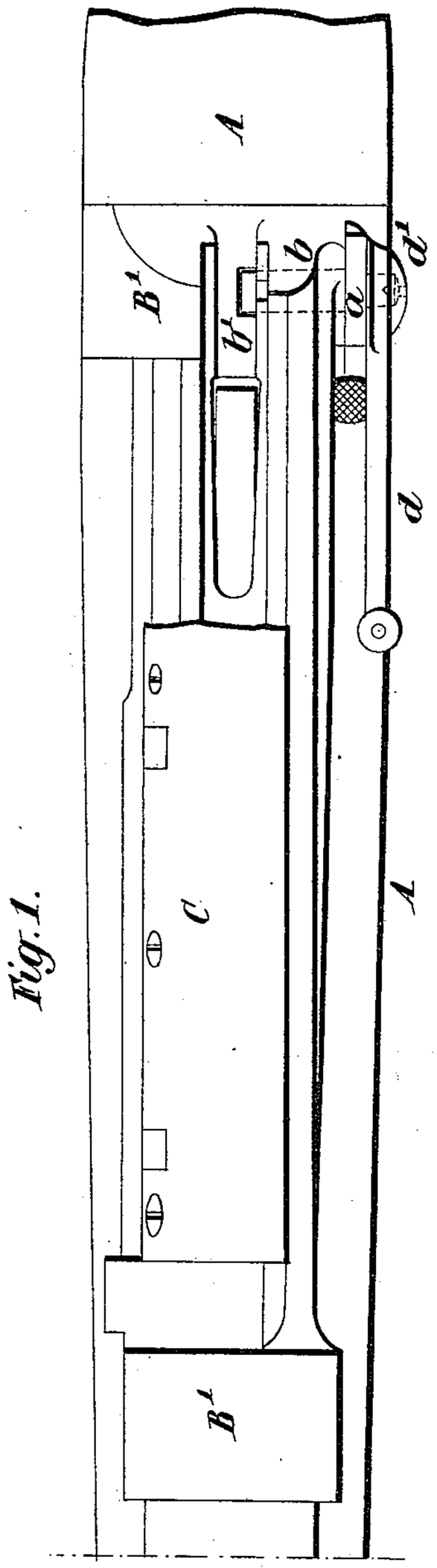

Fig. 1.

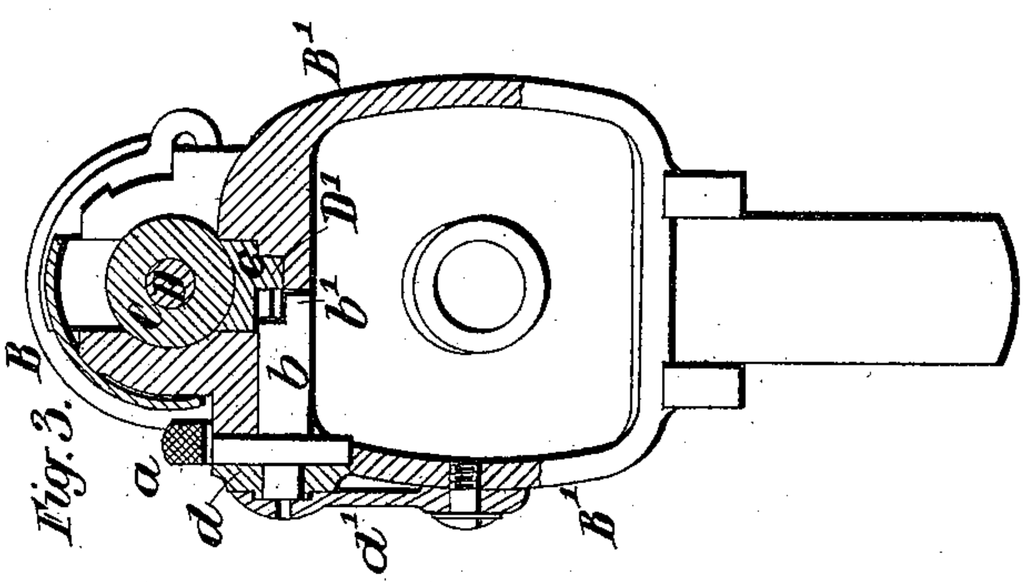

Fig. 3.

Witnesses.
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(No Model.)

4 Sheets—Sheet 2.

J. J. SPEED.

MAGAZINE FIRE ARM.

No. 406,787. Patented July 9, 1889.

Fig. 1ª

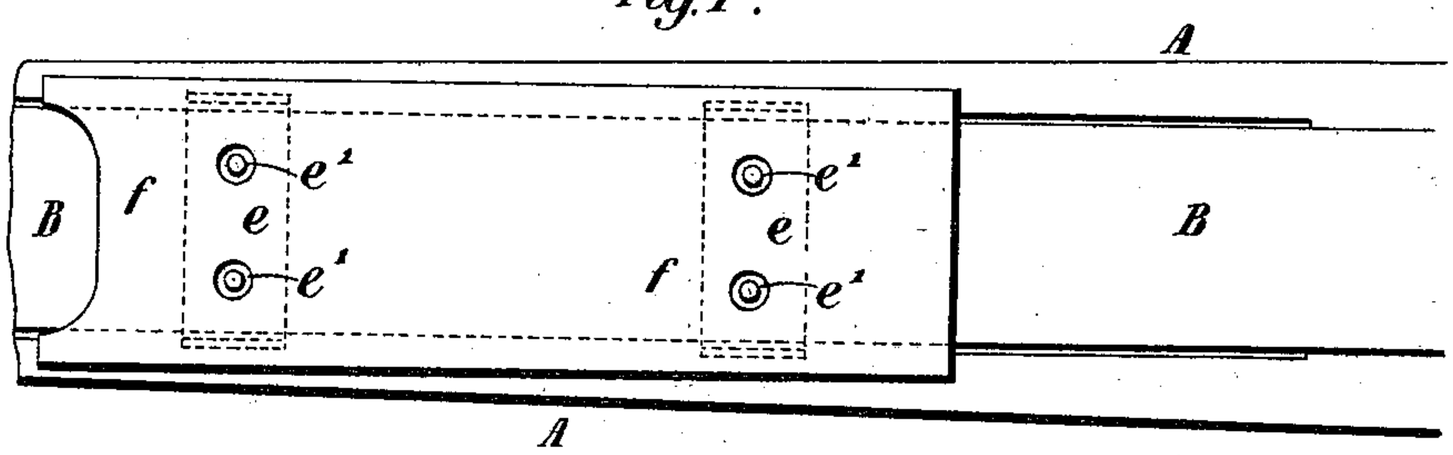


Fig. 2ª

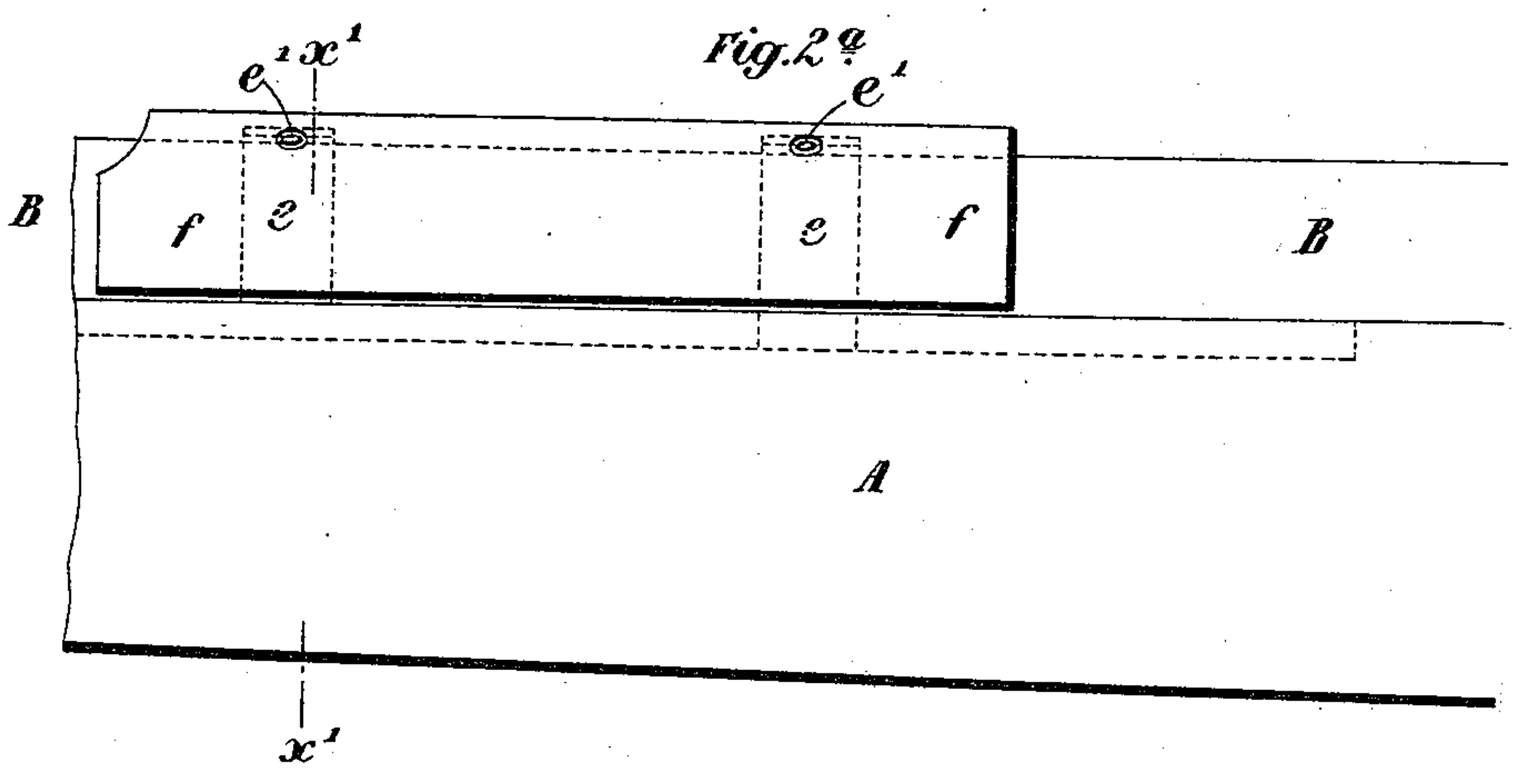
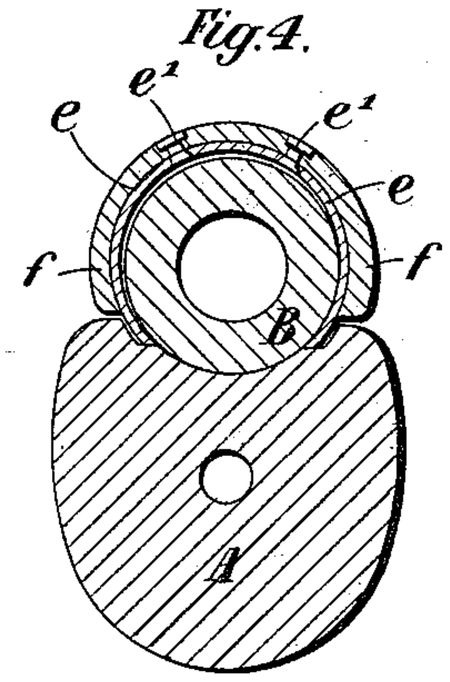


Fig. 4.



Witnesses:

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(No Model.) 4 Sheets—Sheet 3.

J. J. SPEED.

MAGAZINE FIRE ARM.

No. 406,787. Patented July 9, 1889.

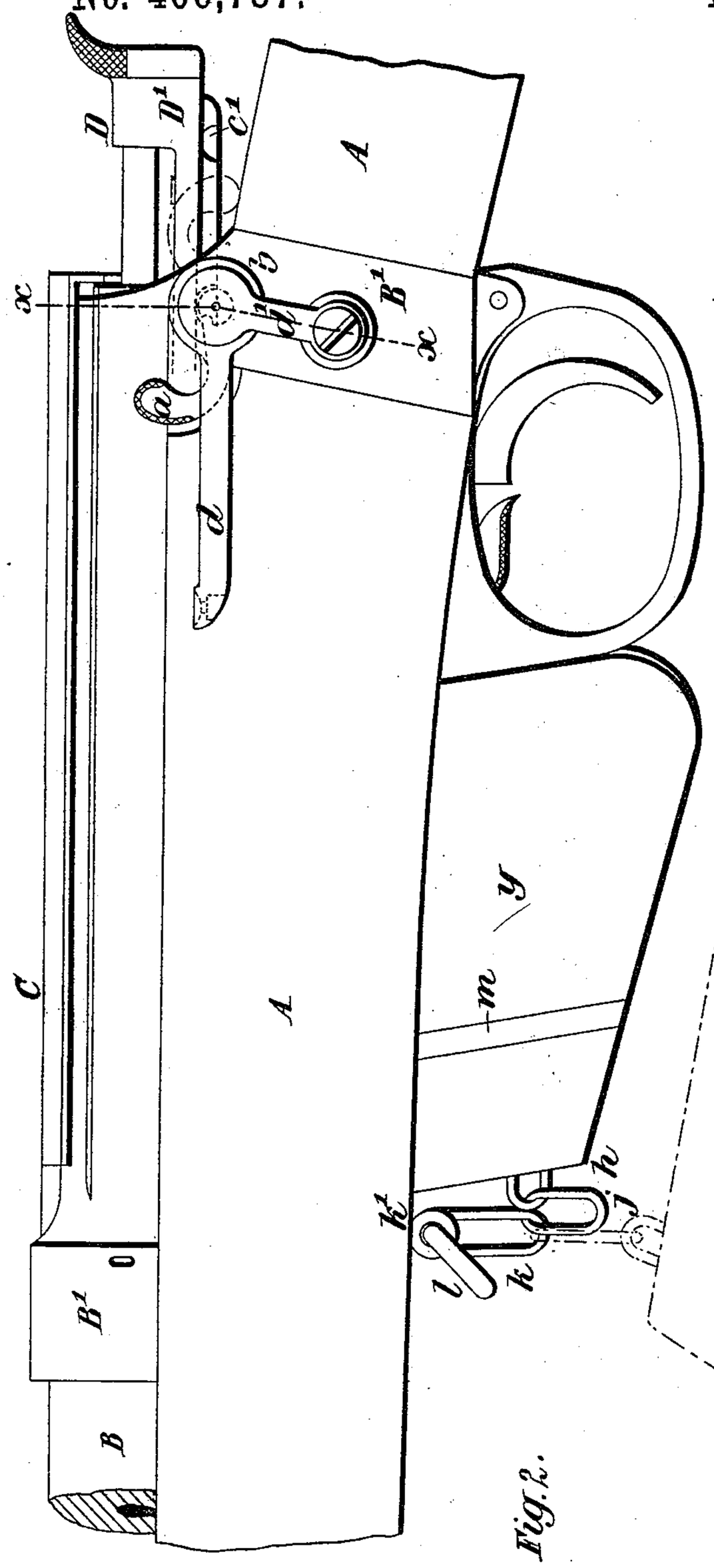

Fig. 2.

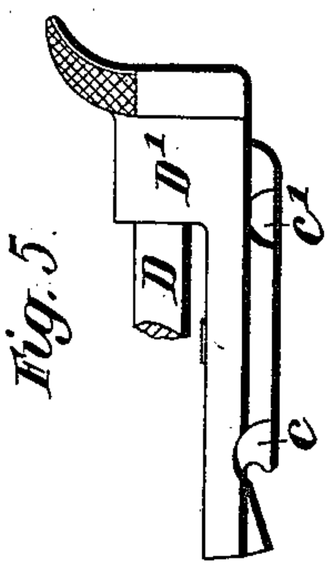

Fig. 5.

Witnesses.
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(No Model.) 4 Sheets—Sheet 4.

J. J. SPEED.

MAGAZINE FIRE ARM.

No. 406,787. Patented July 9, 1889.

Fig. 8.

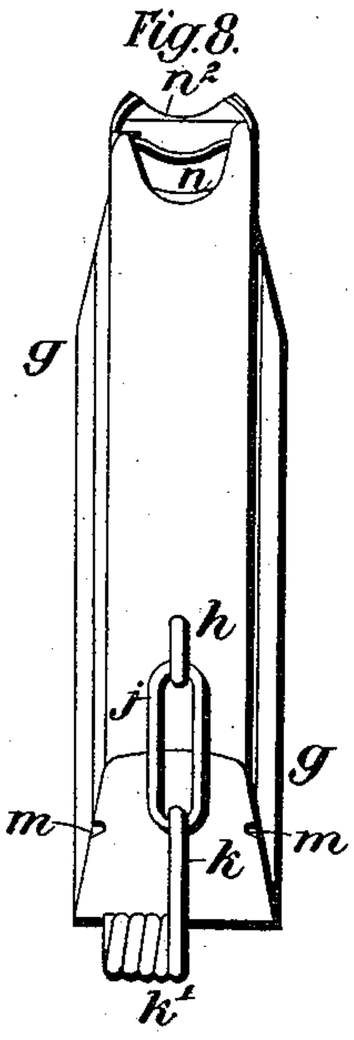

Fig. 9.

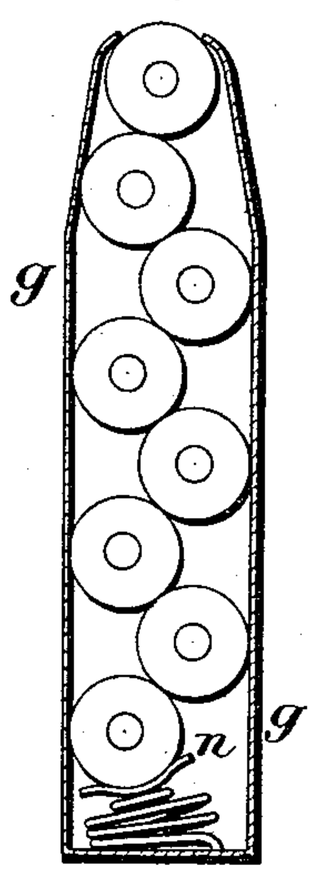

Fig. 7.

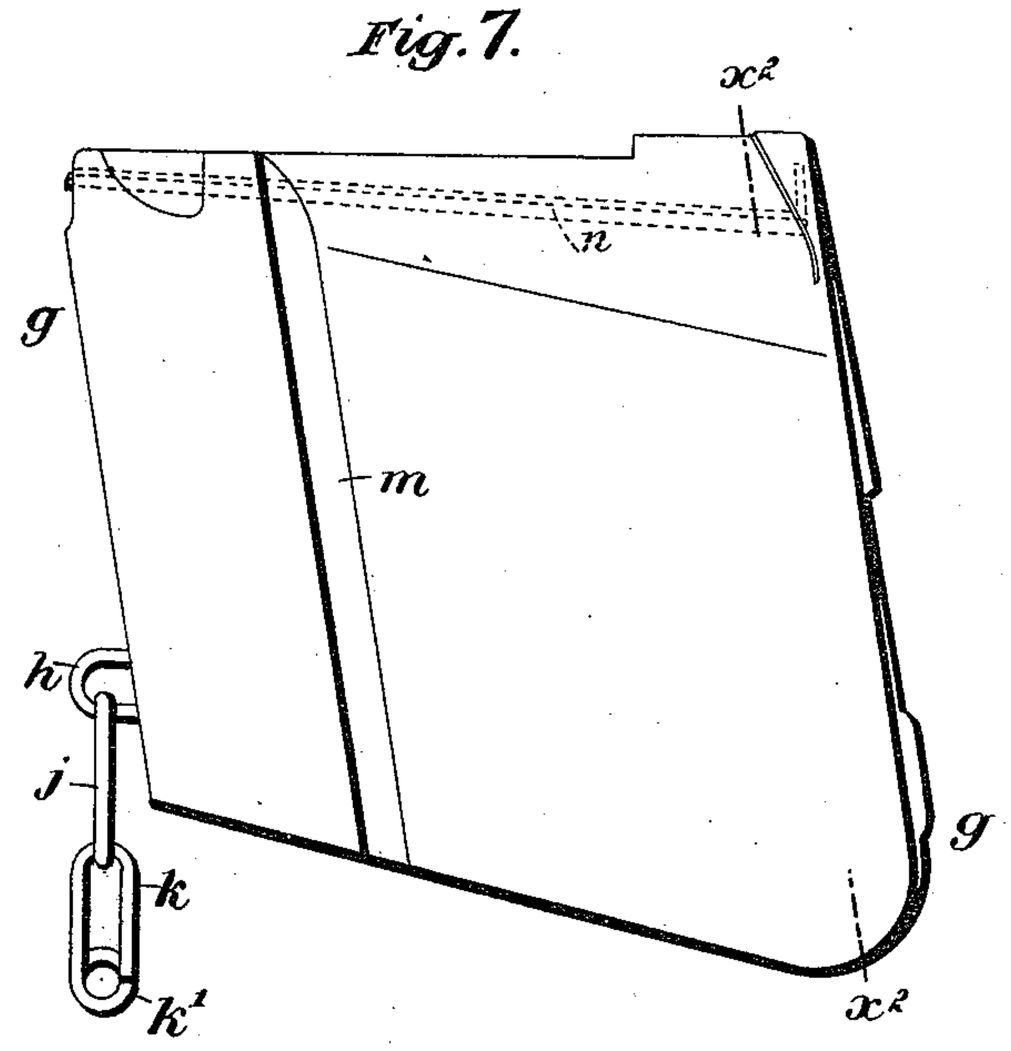

Fig. 6.

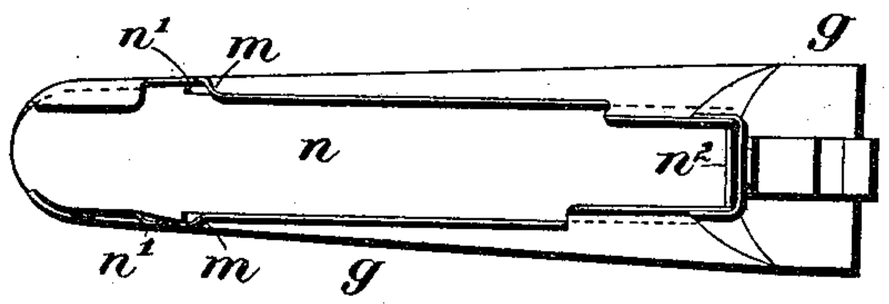

Fig. 10.

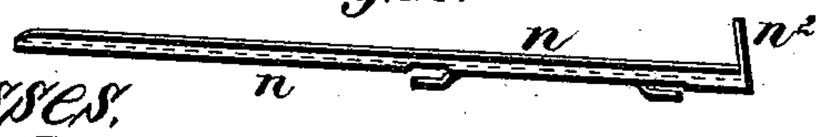

Fig. 11.

Witnesses.
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UNITED STATES PATENT OFFICE.

JOSEPH JAMES SPEED, OF WALTHAM CROSS, ENGLAND.

MAGAZINE FIRE-ARM.

SPECIFICATION forming part of Letters Patent No. 406,787, dated July 9, 1889.

Application filed December 19, 1888. Serial No. 294,108. (No model.) Patented in England November 1, 1888, No. 15,786.

To all whom it may concern:

Be it known that I, JOSEPH JAMES SPEED, mechanical engineer, a subject of the Queen of Great Britain, and a resident of Waltham Cross, England, have invented new and useful Improvements in and relating to Magazine-Rifles and other Fire-Arms, (for which I have obtained a patent in Great Britain, No. 15,786, dated November 1, 1888,) of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to magazine-rifles and other fire-arms, and is chiefly designed to improve the construction and increase the efficiency of the "Lee" rifle.

One feature of my said invention is the provision of suitable means for locking or retaining the firing-pin or striker at either extremity of its longitudinal movement—that is to say, either in its cocked position or in the position which it occupies when the gun has been fired. I thus provide for preventing accidental firing of the gun and for enabling the gun to be safely handled while a live cartridge is in the chamber thereof and the firing-pin or striker is cocked. Moreover, by locking the said firing-pin at the forward end of its stroke or movement, accidental opening of the breech will be prevented, as the breech-bolt cannot be turned while the firing-pin or striker is restrained from endwise movement. Therefore a soldier after firing or when drilling with his rifle can, by a simple operation, secure the breech-bolt in such a manner as to prevent accidental movement or displacement thereof—for example, when the butt-end of the rifle is brought down forcibly upon the ground.

My said invention also comprises improved means for permanently attaching a magazine to or connecting it with the gun in such a manner as to permit its insertion in and withdrawal from the aperture in the under side of the receiver or shoe of the gun and to prevent its loss when withdrawn therefrom; and my said invention comprises other improvements hereinafter set forth.

In the accompanying drawings, Figure 1 is a plan of part of a Lee rifle with my present improvements applied thereto, a portion of the breech-bolt being removed. Fig. 2 is a side elevation of the said rifle. Fig. 3 is a rear elevation, partly in transverse section, on the line $x\,x$, Fig. 2, the rear portion of the stock being removed. Fig. 4 is a transverse section on the line $x'\,x'$, Fig. 2^a. Fig. 5 is a side elevation of the firing-pin head or cocking-piece and part of the firing-pin. Fig. 6 is a plan, Fig. 7 a side elevation, and Fig. 8 a front elevation, of the magazine detached. Fig. 9 is a transverse section on the line $x^2\,x^2$, Fig. 7. Fig. 10 is a side elevation, and Fig. 11 a front elevation, of the follower or platform detached.

Like letters indicate corresponding parts throughout the drawings.

A is the gun-stock; B, the barrel; B′, the receiver or shoe of the gun.

C is the breech-bolt; D, the firing-pin, which is provided with the head or cocking piece D′.

a is a lever, which is formed with or fixed upon a pin or rod *b*, extending through the side of the receiver B′, and having its inner extremity cut away, as at *b′*, so that this end is of semicircular form in transverse section. The head or cocking piece D′ of the firing-pin D is formed with corresponding semicircular notches or cavities *c c′* in its under side.

When the lever *a* is in the position shown by full lines in Fig. 2, the firing-pin D can be moved to and fro to cock and fire the gun. By turning the said lever *a* into the position indicated by dotted lines in this figure, after the firing-pin has been cocked and the breech closed, the semicircular end *b′* of the pin or rod *b* may be caused to enter the corresponding notch or cavity *c* in the head or cocking-piece D′, and thus securely retain the said firing-pin in its cocked position. When it is desired to fire the gun the firing-pin can be very readily unlocked without liability to accidental firing of the gun. Moreover, after firing the gun the pin or rod *b* may, by turning the lever *a* as above described, be caused to enter the notch or cavity *c′*, so as to prevent endwise movement of the firing-pin and thus secure the breech-bolt in its closed position.

The gun shown in the drawings is provided with a rear sight comprising an arm *d*, formed with a peep-hole and acted upon by a spring *d′*, designed to retain the said arm either in

a horizontal or in a vertical position. For this purpose the said spring is provided with a stud or projection adapted to enter one or the other of two notches or depressions in the boss of the said arm. This sight is designed for use in combination with the fore-sight described in the specification of former Letters Patent granted to me and dated October 1, A. D. 1887, No. 13,335. I sometimes utilize the spring *d'* of this sight for retaining the lever *a* and pin or rod *b* in place, the said lever *a* being arranged between the arm *d* and the side of the receiver B', as shown. By this combination of parts I am enabled to apply the locking device to the rifle in a very simple and efficient manner at a low cost.

My improved hand-guard is constructed as follows, viz: Two spring-clips *e* are securely attached by rivets *e'* or otherwise to a piece *f* of wood or other suitable non-conductor or slow conductor of heat, which is made to fit the upper side of the barrel at a convenient distance in front of the receiver B'. The said clips are so formed that when the guard is placed upon the barrel and pressed downward the said clips will spring outward over the sides of the barrel and will then engage therewith in such a manner as to prevent accidental displacement of the guard, while permitting its ready removal from the barrel by hand when desired, for cleaning or other purposes.

I provide, as hereinafter described, for permanently attaching or connecting a magazine to the gun in such a manner that it can be withdrawn from the receiver to permit the use therein of other magazines, which are designed to be thrown away after the firing of the cartridges which they contain. The magazine *g* is provided with an eye *h* on the front thereof near its lower end, and the said eye has connected therewith a link *j*, with which is connected another link *k*. The link *k* is formed with a coil *k'*, whereby it is attached to the eye or loop *l* for the attachment of the shoulder-strap. The two links are so constructed as to allow the link *j* to move freely up and down in the link *k*, so that the magazine can be very readily inserted in and withdrawn from the receiver. When the magazine is attached to the gun in this manner, it will (when withdrawn from the receiver) hang in the position indicated by dotted lines in Fig. 2, with its sides parallel or nearly parallel to the axis of the gun—that is to say, in the most convenient position to permit its reinsertion into the receiver. It will, moreover, be suspended freely, so that it can be readily pushed aside in the operation of inserting another magazine into the receiver.

By the employment of the link-hinge above described I obviate the necessity of attaching the magazine to the gun as heretofore by means of a chain, which requires to be much longer than the said link-hinge, and is therefore liable to become twisted by the turning of the magazine when withdrawn from the receiver, thus necessitating the untwisting of the said chain before the magazine can be reinserted into the receiver.

A further object of my present invention is the adaptation of the Lee magazine to contain cartridges arranged in a zigzag column, or in two columns so situated relatively to each other that the axes of the cartridges in one column are level or nearly level with the upper surfaces of the cartridges in the other column. In a magazine of this kind or class it is necessary that the body of the box or casing should be considerably wider than that of a magazine designed to contain a single straight row of cartridges, and that the upper end of the said box or casing should be reduced to a width approximating the width of one cartridge to permit the feeding of the cartridges one by one into position in front of the breech-bolt. Therefore, in order that the platform or follower may enter the narrow part of the box or casing of the magazine, the said platform or follower must be considerably narrower than the wide portion of the said box or casing. Under these circumstances it has heretofore been found impracticable to provide for the efficient control of the platform or follower. It has, moreover, been ascertained by actual experience, in trials of guns provided with magazines of this kind as heretofore constructed, that in the introduction of the first cartridge into the magazine the rear end of the platform or follower is liable to be depressed to such an extent as to cause the accidental removal or displacement of the said platform or follower from the box or casing. It has also been found in practice that it is possible, by depressing the platform or follower at the rear end, to get a cartridge-head underneath the said platform or follower. Now, to obviate these defects I construct the magazine as follows, viz: I make the body of the box or casing sufficiently wide to contain a zigzag column of cartridges, and I form corrugations or depressions *m* at or near the front end of the said box or casing on opposite sides thereof, which corrugations or depressions are made parallel to each other from the top to the bottom of the box, and I make the part of the platform or follower *n* forward of the said corrugations or depressions equal in width to the interior of the magazine-box, so that when the said platform or follower is depressed at its rear end the wide part *n'* thereof is prevented from passing the corrugations or depressions *m* in the walls of the magazine. Moreover, I make the platform or follower longer than the inside length of the magazine-box, so that the said platform or follower will be at a slight angle to the top of the box or casing when the magazine is empty. By the construction of the magazine as above described I provide for so controlling the platform or follower as to prevent its being placed at a sufficient angle or inclination to permit its accidental removal from the box or casing and for preventing de-

pression of the forward end of the platform or follower without simultaneously depressing the rear end thereof.

To prevent the cartridges from getting beneath the said platform or follower when the rear end of the latter is depressed, I turn or bend the rear end of the platform or follower upward, so as to form a flange n^2, which projects a suitable height above the upper surface of the platform to engage with the head of a cartridge placed thereon; or I provide the follower with any other suitable projection for this purpose.

The formation, in the walls of a magazine, of corrugations or depressions for controlling the platform or follower is a well-known device in the Lee magazine when designed to contain a single straight column of cartridges.

In the Lee magazine as hitherto constructed, however, two sets of corrugations or depressions are formed in the walls thereof, one at or near either end thereof, and corresponding projections are provided on the platform or follower. By my improvements I obviate the necessity of employing corrugations at or near the rear end of the box or casing. This is of great importance in the case of a magazine designed to contain a zigzag column of cartridges, more especially when such cartridges are made without rims or heads or with but slight rims, as it enables the magazine to be made very compact, corrugations at or near the rear end of the magazine obviously necessitating the making of the magazine either wider or deeper than would otherwise be required to adapt it to hold the desired number of cartridges. Moreover, if the platform or follower were made of sufficient width to enable it to engage with corrugations at or near the rear end of the magazine-box in the wider part thereof, the said platform or follower could not rise sufficiently high to enter the narrow part of the magazine and properly elevate the last or bottom cartridge.

What I claim is—

1. The combination, with the receiver and the breech-bolt of a breech-loading fire-arm, of a firing-pin and a movable locking-pin adapted to move into engagement with and lock the firing-pin in both its cocked and uncocked positions, substantially as described.

2. The combination, with the breech-bolt, of the firing-pin having the front and rear notches c c', and a movable locking-pin for engaging either of said notches to lock the firing-pin in both its cocked and uncocked positions, substantially as described.

3. The combination, with the firing-pin D, having a cocking-piece D′ and provided on its under side with the front and rear semicircular notches c c', of the rotary pin b, having the semicular end b', to engage either of said notches and thereby lock the firing-pin in its cocked or uncocked positions, substantially as described.

4. The combination, in a fire-arm, of the firing-pin D, the transverse locking-pin b, adapted to engage the firing-pin in both its cocked and uncocked positions, the swinging rear sight-arm d carried by the locking-pin and having a peep-hole, and the spring d', acting on the sight-arm to hold it in either a vertical or horizontal position, substantially as described.

5. The combination, with a fire-arm, of a cartridge-magazine and the link-hinge connecting the magazine with the receiver or shoe of the fire-arm, substantially as described.

6. A cartridge-magazine for fire-arms, consisting of the casing having a laterally-widened base and contracted at the top to substantially the width of a single cartridge, said casing being thus adapted to contain a zigzag column of cartridges and provided near the front end alone of its opposite side walls with vertically-extending depressions, and the cartridge-platform n, having the laterally-widened or extended parts n' in front of the said depressions for preventing the said extended parts of the platform from passing the depressions when its rear end is depressed, substantially as described.

In testimony whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JOSEPH JAMES SPEED.

Witnesses:
DAVID YOUNG,
A. E. NIXON.