

(No Model.)

3 Sheets—Sheet 1.

R. L. BREWER.
MAGAZINE FIRE ARM.

No. 307,626.

Patented Nov. 4, 1884.

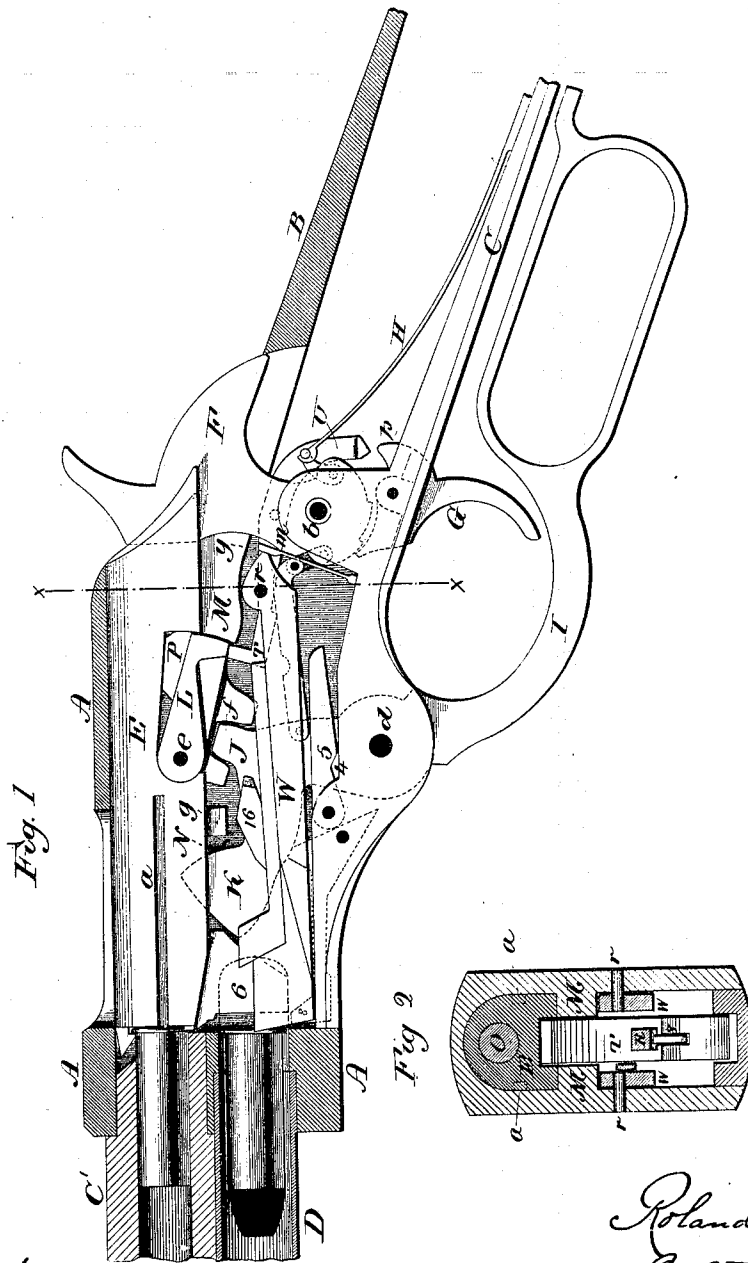


Fig. 1

Fig. 2

Witnesses.
J. P. Shumway
J. S. Carle

Roland L. Brewer
By atty. Inventor.
J. S. Carle

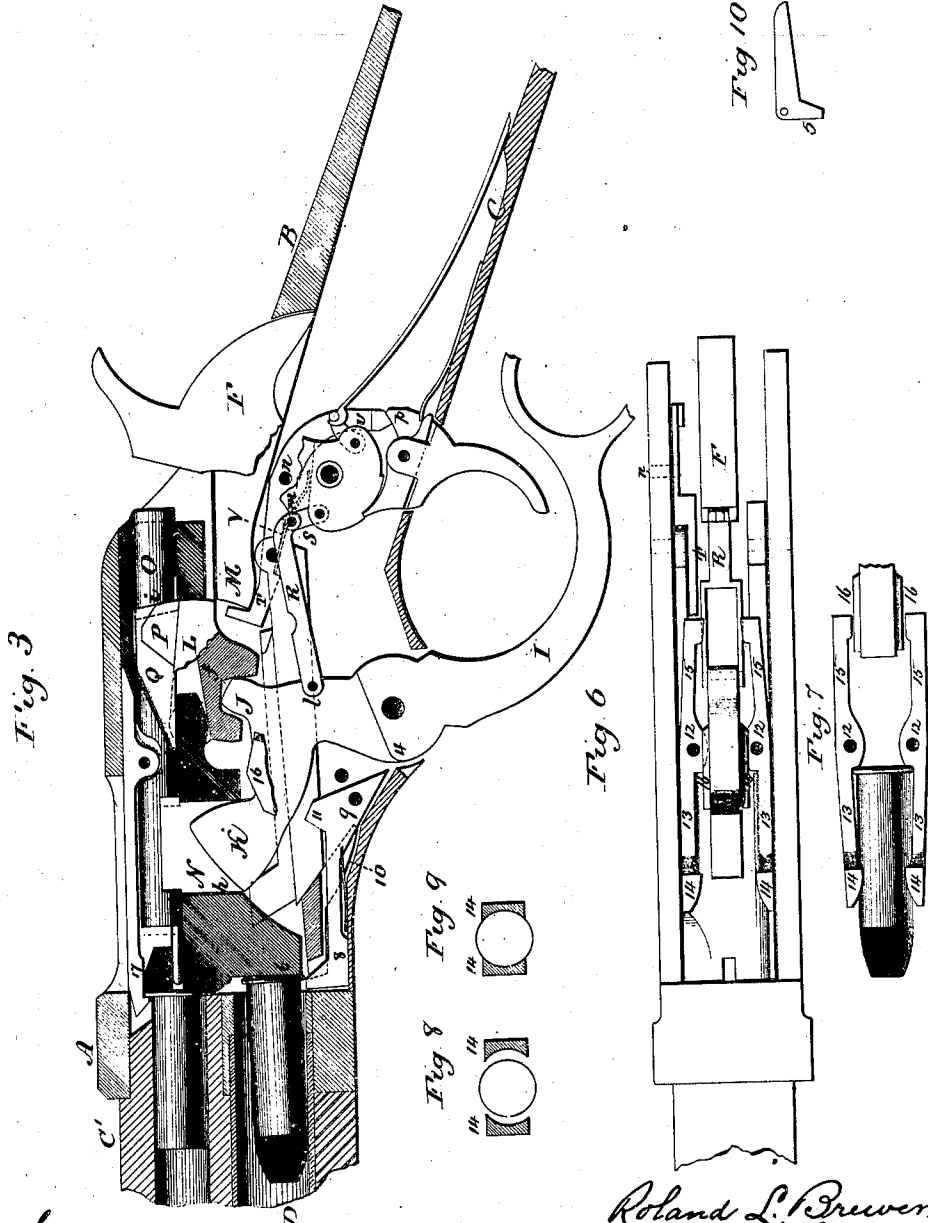
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Witnesses,
Geo. H. Shumway
Josef C. Carl

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(No Model.)

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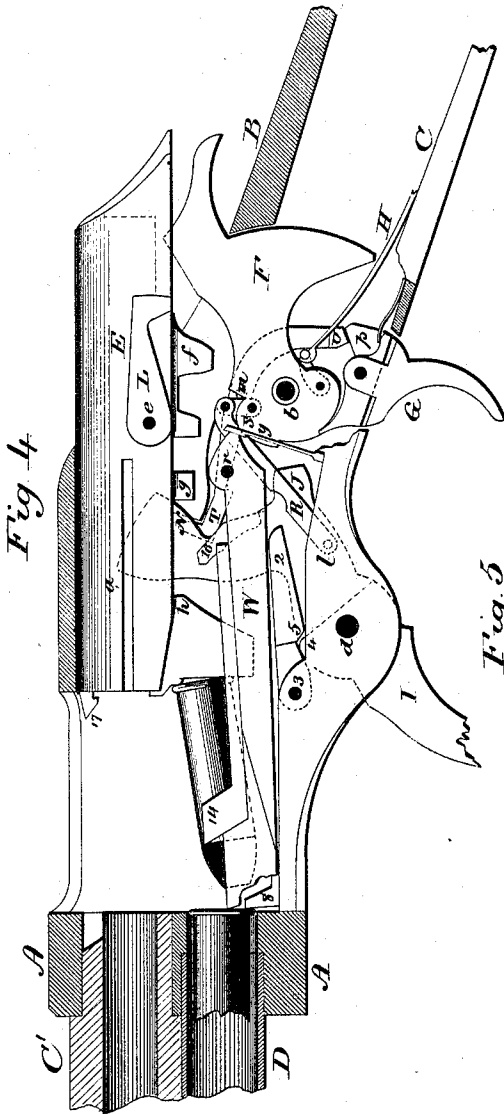


Fig 4

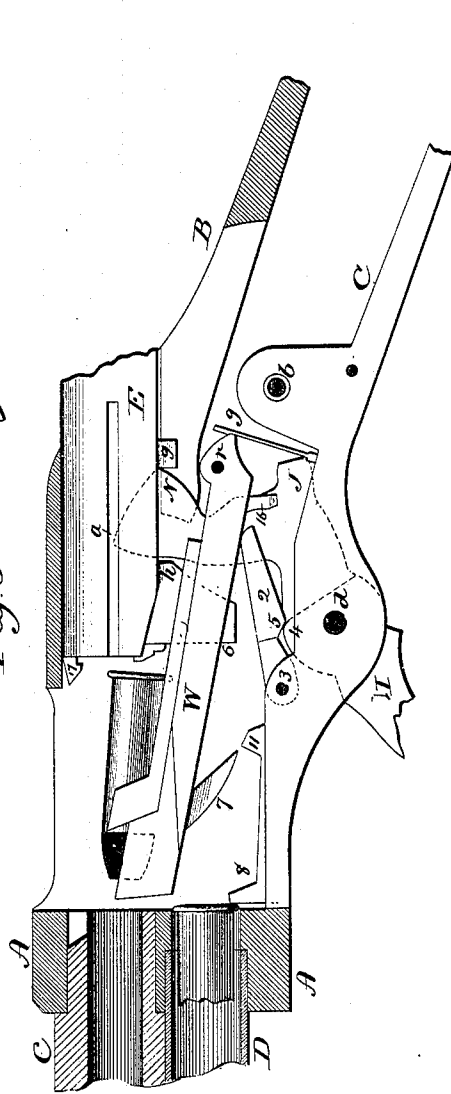


Fig. 5

Witnesses.
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UNITED STATES PATENT OFFICE.

ROLAND L. BREWER, OF HARTFORD, CONNECTICUT, ASSIGNOR TO COLTS PATENT FIRE ARMS MANUFACTURING COMPANY, OF SAME PLACE.

MAGAZINE FIRE-ARM.

SPECIFICATION forming part of Letters Patent No. 307,626, dated November 4, 1884.

Application filed June 2, 1884. (No model.)

To all whom it may concern:

Be it known that I, ROLAND L. BREWER, of Hartford, in the county of Hartford and State of Connecticut, have invented a new Improvement in Magazine Fire-Arms; and I 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 sectional side view showing all the parts in the closed position; Fig. 2, a vertical section on line *x x* of Fig. 1; Fig. 3, a sectional side view showing the parts as in the first part of the opening movement; Fig. 4, same view showing the position of the parts as they approach the opening movement; Fig. 5, the same showing the parts in the extreme open position; Fig. 6, a top view, the breech-piece removed, showing the top of the carrier and the grasping-finger levers thereon in their open position; Fig. 7, the same levers and fingers in the closed or grasping position. Fig. 8, a transverse section through the fingers in their open position; Fig. 9, the same with the fingers in the closed or grasping position. Fig. 10, a modification of the lever which raises the carrier.

This invention relates to an improvement in that class of breech-loading fire-arms in which the breech-piece is arranged to move longitudinally in a line with the barrel—rearward in opening and forward in closing the breech—the said breech-piece actuated by a lever extending down through the receiver, and so as to form the trigger-guard below, and in which a magazine is arranged beneath and parallel with the barrel, but parts of my invention being applicable to single breech-loading fire-arms, the principal object of my invention being to make a dead-lock for the breech-piece in its closed position; and it consists in the construction as hereinafter described, and more particularly recited in the claims.

A represents the receiver, which is of substantially the usual outline, terminating at the rear in a tang, B, above and a tang, C, below, and by which the receiver is secured to the stock. At its forward end it is fitted to

receive the barrel C', and the magazine D also, in the usual manner, the general outline of the arm being substantially that of the class of arms to which my invention particularly relates.

B is the breech-piece, arranged to move longitudinally in the receiver in axial line with the barrel, and is guided and supported in such movement by its peculiar shape and corresponding shape of the opening through the receiver, and also by a longitudinal groove, *a*, on each side the breech-piece, near its forward end, and corresponding studs in the receiver, as seen in Fig. 2.

F is the hammer, which is hung upon a pivot, *b*, in the receiver, and so as to turn thereon in the usual manner, and is caught in its several positions by the trigger G, and from which it is released by a pull of the trigger, in the usual manner, and when so released the main-spring H throws the hammer forward to deliver its blow.

I is the trigger-guard lever, of usual shape, hung in the receiver upon a pivot, *d*, forward of the trigger. Above the pivot *d* the lever extends to form two arms, J and K.

L is the locking-dog hung upon the under side of the breech-piece on a pivot, *e*, its forward end concentric with the pivot, and the seat in the breech-piece of corresponding shape, so that the surface of the dog around the pivot end fits closely the corresponding surface in the breech-piece. This dog is arranged to swing up and down, as from the position in Fig. 1 to that in Fig. 2. In each side of the receiver is an abutment, M, below the breech-piece, against the forward end of which the rear end of the dog stands in its closed position, as seen in Fig. 1. Upon the under side of the dog a notch, *f*, is formed corresponding to the end of the arm J of the actuating-lever, and in which that arm plays like the tooth of a gear, standing in the closed position seen in Fig. 1. If the actuating-lever I be turned down, as seen in Fig. 3, the arm J will strike the rear side of the notch *f* in the dog L, and will raise the dog from the position seen in Fig. 1 to that seen in Fig. 3, and this first movement of the lever therefore raises the dog from its locked position against

the abutments M to a position above and clear of those abutments. The abutments are arranged one upon each side, as before stated, a space between them being necessary for the passage of the downwardly-projecting part of the dog, as well as of the arms of the lever in the rear movement. The arm K extends up into a recess, N, in the breech-piece, but so that when the parts stand in their closed position the rear face of the arm K is forward of the rear end, *g*, of the recess N, and is so far forward of that rear surface, *g*, as to permit the lever to be turned from the position in Fig. 1 to that in Fig. 3, so as to unlock the breech-piece before the arm K comes to a bearing on the surface *g*, and as seen in Fig. 3. The breech-piece being unlocked, as described, the arm K now comes in contact with the surface *g*, and from that point the downward movement of the lever I being continued, say as to the position seen in Fig. 5, the arm K causes a corresponding rear movement of the breech-piece to its fully-open position. At this time the forward face, *h*, of the recess N stands substantially against the forward face of the arm K, and so that in returning the lever to the position seen in Fig. 3 the forward face of the arm K bears against the forward face of the recess N and returns the breech-piece to its closed position. At this time the actuating-lever I has not quite reached its closed position. In completing the movement of the lever I, it is moved from the position seen in Fig. 3 to that seen in Fig. 1. In so doing the dog L is turned down from its position as seen in Fig. 3 to that seen in Fig. 1, and in front of the abutment M, which locks the breech-piece in its closed position. The arm K escapes from its bearing upon the forward face, *h*, of the recess N, and thereby avoids the strain upon the pivot of the actuating-lever, as must be the case where that lever serves as the support for the breech-piece against recoil.

O is the firing-pin arranged longitudinally through the breech-piece in the usual manner, and terminating at its forward end in the center point, *a*. When the parts are in their closed position, the firing-pin is free for longitudinal movement under the influence of the hammer, or otherwise.

Upon the back of the dog L is a cam, P, which works up and down through a corresponding recess, Q, in the firing-pin, the cam acting against the rear end, *i*, of this recess. In the first movement of the lever I, which raises the dog L from its position in Fig. 1 to that in Fig. 3, the cam P strikes the rear face, *i*, of the recess Q in the firing-pin, and forces the firing-pin rearward from the position seen in broken lines, Fig. 3, to the position indicated in full lines in same figure; and this first movement of the firing-pin draws its point inward and away from the front face of the breech-piece, and so that it cannot be moved to present its point forward of the front face

of the breech-piece until the dog is turned downward from the position seen in Fig. 3 to that seen in Fig. 1, in which position the firing-pin is left free for longitudinal movement.

To turn the hammer rearward and in advance of the rear movement of the firing-pin or breech-piece, and so that in such movement it shall be entirely free from possible contact with the firing-pin, I introduce a strut, R, one end of which is hung to the upper arm of the actuating-lever above the pivot, as at *l*. The strut extends rearward and is connected to the hub of the hammer forward of its pivot by a link, S, the link hinged both to the strut and to the hub of the hammer. The rear end of the strut bears against a shoulder, *m*, on the hammer, as seen in Fig. 1. In the first part of the downward movement of the actuating-lever—as from the position in Fig. 1 to that in Fig. 3—the strut, bearing against the shoulder *m*, turns the hammer to half-cock, as seen in Fig. 3, the link S holding the strut in contact with the shoulder *m* in this movement. In completing the downward or opening movement of the lever, the strut R continues the opening movement of the hammer until it arrives at full-cock position, as seen in Fig. 4. At that time the pivot *l* of the strut in the lever passes below the central line drawn from the pivot *d* of the lever to the rear end of the strut, and in so passing below the rear end of the strut moves forward, the link S permitting it so to do, and so as to take the strut from the shoulder *m* on the hammer, leaving the hammer at full-cock, and as seen in Fig. 4. The rear movement of the hammer is therefore considerably in advance of the rear movement of the breech-piece, the hammer standing at full-cock while the rear movement of the breech-piece is continued, and so that the breech-piece will pass over and clear from the hammer, and whereby the rear movement of the hammer is only made to the extent necessary for it to properly deliver its blow, the breech-piece passing on over the hammer after the movement of the hammer is stopped. One great advantage of this arrangement of the strut, hammer, and lever with relation to the breech-piece is that by throwing the end of the strut which is hinged to the lever below a line drawn from the pivot of the lever and the pivot between the link and the hammer, so that the rear movement of the breech-piece may be continued after the hammer has arrived at its full-cocked position, I am enabled to employ a long cartridge without any additional rear movement of the hammer, which must be necessary where the hammer, lever, and breech-piece are connected, so that the rear movement of the hammer and breech-piece continue together to the extreme rear position, and under which arrangement the rear movement of the hammer would be much greater than would be necessary for the delivery of the blow. The under side of the

breech-piece is recessed, as seen in Fig. 2, and as seen in broken lines, Fig. 4, in order that it may escape the nose of the hammer as it passes over it.

5 To prevent the accidental fall or release of the hammer until all the parts shall be securely locked in position preparatory to receive the blow of the hammer, I arrange a lever in the receiver upon a pivot, *n*, one arm, *T*, of which
10 extends forward to a position beneath the rear end of the dog. The other arm, *U*, extends rearward and stands over a projection or shoulder, *p*, on the trigger in rear of the pivot. When the dog is down, as seen in Fig. 1, it
15 bears against the forward arm, *T*, of the lever, and so as to hold the rear arm, *U*, up and away from the projection *p* on the trigger, leaving the trigger free to be pulled; but as soon as the dog rises the lever is turned, under the action of a spring, *V*, to throw the forward end upward, following the dog into the position seen in Fig. 3. This movement
20 throws the rear arm, *U*, downward and upon the projection *p* on the trigger, so as to prevent the trigger being pulled from its hold on the sear of the hammer, and the hammer is substantially locked in its cocked position until the dog returns to its locked position, as seen in Fig. 1, in which movement it strikes
25 the forward arm, *T*, of the lever and turns the arm *U* from its position of engagement with the projection *p* on the trigger.

As thus far described the mechanism of the arm is applicable to single breech-loaders as well as to magazine arms.

I will now describe the mechanism which, acting in connection with that heretofore described, adapts the construction to a magazine-gun.

40 *W* is the carrier, hung at its rear end upon a pivot, *r*. In rear of the pivot a spring, *y*, bears against the rear end of the carrier, substantially in line with the pivot, the action of the spring being upward when the carrier is
45 in its down position, as seen in Fig. 1, but so that as the carrier is raised to the position seen in Fig. 5 the bearing upon the spring comes below the pivot, and the spring tends to hold the carrier in its up position.

50 In the receiver underneath the carrier a lever, 2, is hung upon a pivot, 3, to extend rearward from the pivot, and so as to bear upon the under side of the carrier forward of its pivot. This lever and its operation are best
55 seen in Figs. 4 and 5.

60 On the hub of the lever 1 is a cam or shoulder, 4, and on the under side of the lever 2 a corresponding shoulder, 5. As the breech-piece approaches its extreme rear position and the lever 1 its forward position the shoulder 4 on the lever 1 strikes the shoulder 5 on the lever 2, and then as the forward movement of the lever 1 is completed the lever 2 is turned from the position seen in Fig. 4 to that seen
65 in Fig. 5, and as the lever 2 bears against the under side of the carrier it raises the carrier

from its down position, Fig. 4, to that seen in Fig. 5, the spring *y* engaging the carrier so as to hold it, as before described, in either of the said two positions. The carrier is returned
70 by a downward projection, 6, from the breech-piece, which works through a longitudinal slot in the carrier, and so that as the breech-piece approaches its closing position it strikes an incline, 7, on the carrier, and riding upon
75 that incline turns the carrier downward from the position seen in Fig. 5 to that seen in Fig. 4. In the bottom of the receiver a latch, 8, is hung at its rear end upon a pivot, 9. Beneath it is a spring, 10, the action of which is to force
80 the latch upward, so that its nose may stand at the rear end of the magazine, and against the head of the cartridge therein, as seen in Fig. 4, and serve as a stop for the column of cartridges in the magazine. On this latch, above
85 the pivot, is a bearing, 11, upon which the arm *K* of the actuating-lever will strike in its extreme forward position, and so as to turn the nose of the latch down away from its position as a stop to the magazine, and as seen in Fig.
90 1. In this down position the rearmost cartridge of the magazine passes over the latch and against the downward projection 6 on the breech-piece, and so that as the breech-piece commences its rear movement the rear-
95 most cartridge in the magazine will follow it upon the carrier, as seen in Fig. 4. The latch 8 being free, so soon as the actuating-lever starts it will rise into its position, (seen in Fig. 4,) and so as to come in rear of the head of the
100 next cartridge, and serve as a stop for the column of cartridges, and there remain until the parts are returned into their completely-closed position, when the arm *K* strikes the bearing 11 on the latch and turns it downward, as seen
105 in Fig. 1.

The receiver is constructed with a side opening for the charging of the magazine, as indicated in broken lines, Fig. 1, when the parts are in their closed position; but this side opening or method of charging the magazine is no part of my present invention, and therefore
110 needs no description, further than to say that it may be any of the known constructions of opening for such purpose. As the cartridge
115 passes from the magazine onto the carrier, as seen in Fig. 4, it would lie there free were there not some device to hold it. Such freedom of the cartridge upon the carrier is objectionable, owing to the liability of the car-
120 tridge dropping from the recess in the receiver when the arm is inverted, or the liability of the cartridge to be thrown out by the ascent of the carrier under a quick action of the lever 1. To hold the cartridge upon the carrier and
125 avoid these difficulties, I arrange a pair of levers on the upper surface of the carrier, and so as to swing in a horizontal plane. These levers are hung upon the top of the carrier—
130 one at each side—upon a pivot, 12. One arm, 13, of each lever extends forward and terminates in a finger, 14, which fingers are of a

shape upon their inside to grasp the body of the cartridge. The other arm, 15, of the levers extends rearward, one each side of the upper arm of the actuating-lever. On each side of the upper part of the lever I, and between the two arms L K, a cam, 16, is formed, which, as the actuating-lever is turned rearward, as from the position in Fig. 3 to that in Fig. 4, passes down between the tails 15 of the levers, and so as to force those tails, say, as from the position seen in Fig. 6 to that seen in Fig. 7, and such outward movement of the tails of the levers causes their forward or finger ends to approach each other, as seen in Fig. 7. As these fingers stand in their open position, as seen in Fig. 6, the space between them permits the free rear movement of the cartridge onto the carrier and between the fingers, as seen in Fig. 8; but as the actuating-lever is turned rearward the fingers approach each other and grasp the cartridge, as seen in Figs. 7 and 9, held in that grasped position by the cams 16, standing between the tails of the levers, and those cams so remain until, in the forward movement of the actuating-lever, they pass above the tails; but at that time the breech-piece is moved so far forward as to have carried the cartridge into its chamber in the barrel, and so far that its position is assured. The continued movement of the cartridge between the fingers causes them to turn outward for the passage of the head between them. The fingers swing freely in a horizontal plane, and are closed by the action of the cams, but free to open by the forward movement of the cartridge. The breech-piece is provided with the usual hooked extractor, 17, and corresponding shoulder, 18, on the face of the breech-piece below—too well known to require particular description.

The connection between the actuating-lever and the hammer—that is, the strut R and the link S connecting the lever and the hammer—may be employed in many known constructions of arms in which the connection between the said lever and the breech-piece differs from the mechanism herein described. I therefore do not wish to be understood as limiting this part of my invention to a particular connection between said lever and breech-piece.

While I prefer to hang the lever 2, through which the carrier is raised, on a pivot forward of the shoulder 5, this lever may be in the shape of a bell-crank lever, as seen in Fig. 10. In that case the shoulder 5 becomes the shorter arm of the lever, and will be acted upon by the cam 4 on the lever, the same as in the first-described construction.

I am aware that a strut has been arranged between the lever and the hammer, connected to the hammer by a link, whereby the hammer is thrown backward; but in such construction the same actuating-lever has been in positive connection with the breech-piece, and so that the first movement of the hammer and the first movement of the breech-piece are

simultaneous, and the movement of the hammer continues throughout the entire movement of the breech-piece. I therefore do not claim, broadly, a strut-like connection between the actuating-lever and the hammer.

I claim—

1. In a fire-arm, the combination of a longitudinally-movable breech-piece, E, the dog L, hinged at its forward end to the breech-piece, and so that its rear end may swing up and down, an abutment, M, in the receiver at the rear, against which the rear end of the dog may be turned when the breech-piece is in its closed position, and the actuating-lever, one arm of which forms the trigger-guard, the said lever extended up into the receiver, one arm, J, in connection with the dog L, the other arm, K, arranged to work in a recess in the breech-piece, and whereby, in the first movement of the actuating-lever, the arm J will turn the dog up from its locked position, and then, in the continued movement of the actuating-lever, the other arm, K, will throw the breech-piece rearward, and on the return of the lever the arm K in the first part of the movement will throw the breech-piece into its closed position, and then the arm J turn the bolt into its locked position, substantially as described.

2. In a fire-arm, the combination of the longitudinally-movable breech-piece E, the dog L, hinged at its forward end to the breech-piece, its rear end free to be moved up and down, an abutment, M, in the receiver, against which the dog may be turned to lock the breech-piece, the actuating-lever, one arm of which forms the trigger-guard, said lever extending up into the receiver and constructed with an arm, J, to engage the said dog, a hammer, a trigger arranged to engage the hammer at full-cock, and a lever hung in the receiver, one arm, T, below the dog L, the other arm, U, extending over the trigger, the trigger constructed with a corresponding projection, *p*, and whereby, when the dog is raised from its locked position, the arm U of the said lever will be turned into a position against said projection *p*, whereby the hammer is locked in the cocked position, but released therefrom as the dog is returned to its locking position, substantially as described.

3. In a fire-arm, the combination of the actuating-lever, one arm extending downward through the receiver to form the trigger-guard, the other up into the receiver and arranged to impart the opening and closing movement to the breech-piece, the strut R, one end hinged to the said actuating-lever above its pivot, the other end connected by a link, S, to the hammer forward of its pivot, and the hammer constructed with a shoulder, *m*, against which said strut will bear, the strut hinged to the lever and the link to the hammer at points substantially as described, so that when the breech-piece is thrown to its extreme rear position the hinging-point between the lever and

the strut will come below the line between the pivot of the lever and the pivot of the link in the hammer, and whereby, in the downward or opening movement of the lever, the hammer is thrown to full-cock before the breech-piece arrives at its extreme rear movement, substantially as specified.

4. In a magazine fire-arm, substantially such as described, the combination of the actuating-lever, one arm of which extends downward through the receiver to form the trigger-guard, the carrier W, hung upon a pivot in rear of the pivot of the actuating-lever, and the lever 2, hung in the receiver below the carrier, the actuating-lever constructed with a cam, 4, at its hub, and the lever 2, with a shoulder, 5, corresponding to and so as to engage said cam, substantially as and for the purpose described, whereby as the actuating-lever approaches its extreme opening position the said cam 4, acting upon the shoulder 5 of the lever 2, turns said lever 2 upon its pivot, and through the said lever 2 raises the carrier to the position of presenting the cartridge forward of the breech-piece.

5. In a magazine fire-arm, substantially such as described, the combination therewith of the carrier W, hung upon a pivot at the rear, and so that its forward end may rise and fall, a pair of levers hung upon said carrier, and so as to swing toward and from each other in a horizontal plane, the forward end of said levers constructed to form grasping-fingers 14, and the actuating-lever, one arm of which extends downward to form the trigger-guard, the other arm extending up into the receiver, and so as to work between the tails of said pair of levers, and constructed with a cam, 16, whereby in the opening movement of said levers said grasping-fingers are forced toward each other and released in the closing movement, substantially as and for the purpose described.

6. In a magazine fire-arm, substantially such as described, the combination of a longitudinally-movable breech-piece, a lever, one arm of which extends downward through the receiver to form the trigger-guard, the other arm upward and into connection with the breech-piece, whereby the longitudinal movement is imparted to said breech-piece, a carrier, W, hung in the receiver upon a pivot in rear of the pivot of the actuating-lever, and a lever, 2, hung below the receiver and constructed with a shoulder, 5, the actuating-lever constructed with a corresponding cam, 4, and whereby the

carrier is raised as the actuating-lever approaches its extreme opening movement, the said carrier constructed with incline 7, forward of its pivot, and the breech-piece with a downward projection, 6, corresponding to the said incline 7, substantially as described, and whereby the said projection 6, in the closing movement of the breech-piece, strikes said incline and forces the carrier to its down position.

7. In a magazine fire-arm, substantially such as described, the combination of a longitudinally-movable breech-piece, a lever, one arm of which extends downward through the receiver to form the trigger-guard, the other arm upward and into connection with the breech-piece, whereby the longitudinal movement is imparted to said breech-piece, a carrier, W, hung in the receiver upon a pivot in rear of the pivot of the actuating-lever, and a lever, 2, hung in the receiver below and constructed with a shoulder, 5, the actuating-lever constructed with a corresponding cam, 4, and whereby the carrier is raised as the actuating-lever approaches its extreme opening movement, the said carrier constructed with incline 7 and the breech-piece with a downward projection, 6, the carrier constructed with a projection at its rear, and the spring *y* to bear upon said projection to hold the carrier in either its up or down position, substantially as described.

8. In a magazine fire-arm, the combination of the longitudinally-movable breech-piece, a carrier arranged to swing up and down, an actuating-lever, one arm of which extends downward to form the trigger-guard, the other up into the receiver to impart the longitudinal movement to the breech-piece and the swinging movement to the carrier, and the magazine-latch 8, hung in the receiver below the carrier, constructed with a bearing, 11, in the path of the upper arm of the actuating-lever, and whereby, in the complete closing movement of said lever, the upper arm will depress the said latch to open the magazine, and in the first opening movement of said lever to release said latch and permit it to rise as a stop for the magazine, substantially as described.

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Witnesses:

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