

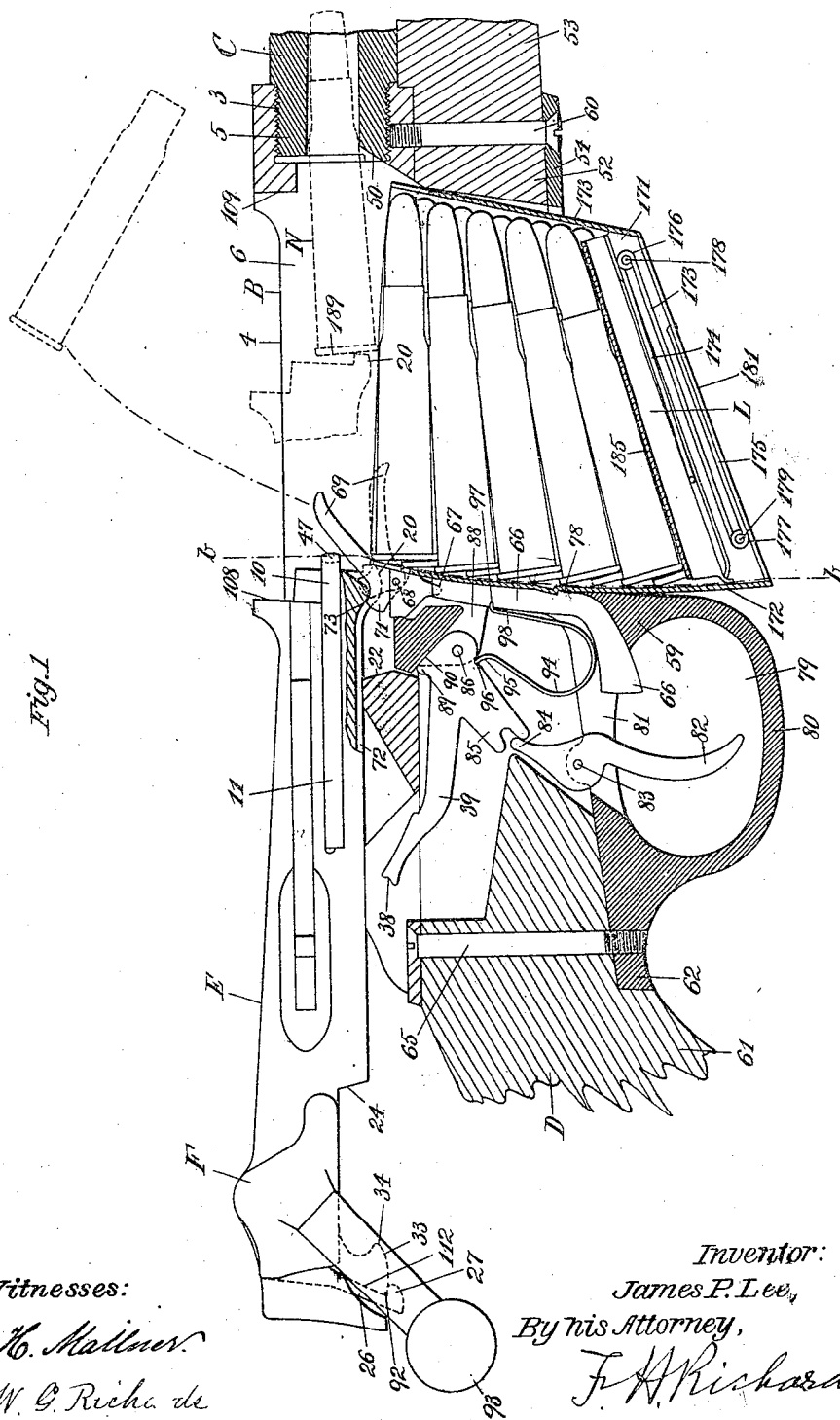
(No Model.)

3 Sheets—Sheet 1.

J. P. LEE.
MAGAZINE GUN.

No. 506,322.

Patented Oct. 10, 1893.



Witnesses:

H. Muller.

W. G. Richards

Inventor:

James P. Lee,

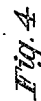
By his Attorney,

F. A. Richards

3 Sheets—Sheet 2.

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Patented Oct. 10, 1893.



H. Haller.

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By his Attorney,

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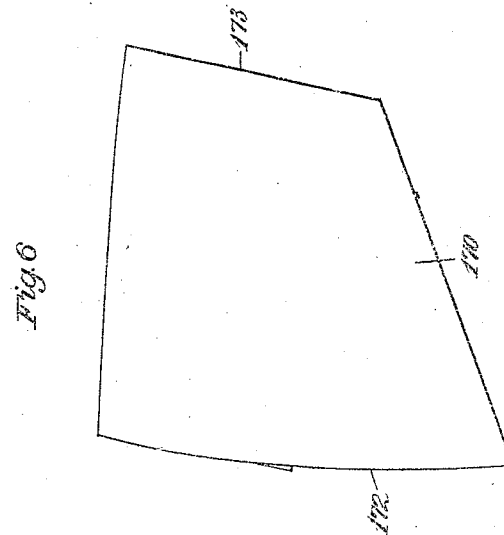
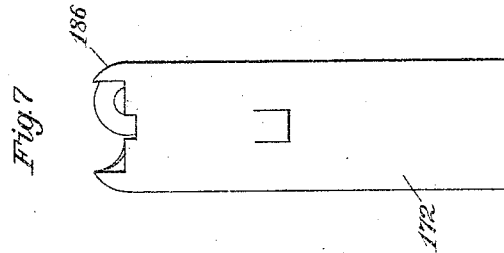
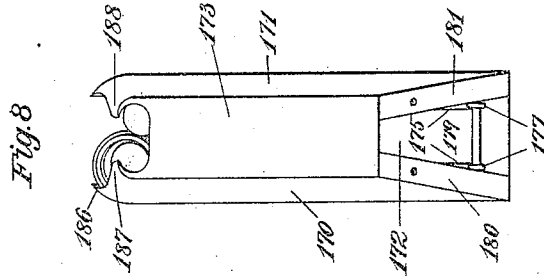
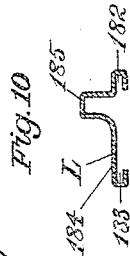
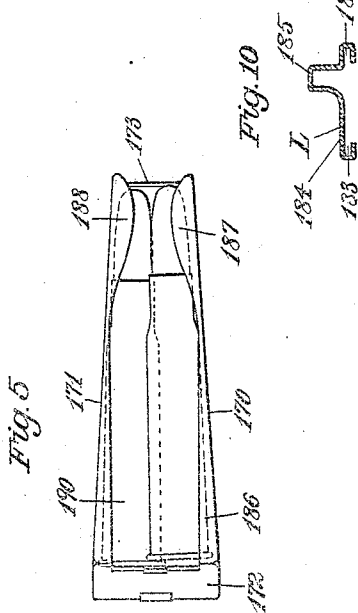
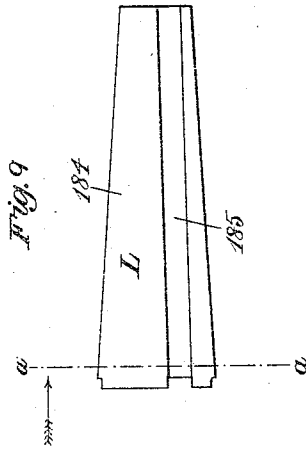
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Witnesses:

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W. G. Richards.

Inventor:

James P. Lee,
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UNITED STATES PATENT OFFICE.

JAMES P. LEE, OF ILION, NEW YORK.

MAGAZINE-GUN.

RECEIVED AT THE Patent Office, Washington, D.C., October 12, 1892.

Application filed October 7, 1892. Serial No. 247,530. (No model.)

To all whom it may concern:

Be it known that I, JAMES P. LEE, a citizen of the United States, residing at Ilion, in the county of Herkimer and State of New York, have invented certain new and useful improvements in Magazine-Guns, of which the following is a specification.

This invention relates to that class of magazine fire-arms commonly known as bolt-guns; the object being to provide an improved breech-loading fire-arm of the particular class known as "Lee" guns, in which the cartridges are delivered sidewise to the bolt-mechanism, being carried one above another toward the bolt of the gun, and in one or more columns, by means of a spring-actuated follower.

In the drawings accompanying and forming a part of this specification, Figure 1 is a sectional side elevation of a magazine fire-arm embodying my present invention. Fig. 2 is a vertical cross-section of the gun and magazine, in line *b-b* of Fig. 1. Fig. 3 is a vertical longitudinal section similar to a portion of Fig. 1, showing the magazine emptied of cartridges. Fig. 4 is a view of the rearward end of the cartridge-elevating platform of the magazine. Fig. 5 is a plan view of the magazine when loaded with cartridges. Fig. 6 is a side elevation of the same. Fig. 7 is a rear elevation, and Fig. 8 a front elevation, of the loaded magazine. Fig. 9 is a plan view of the cartridge-elevating table or platform. Fig. 10 is a section, in line *a-a*, Fig. 9, of said table or platform.

Similar characters designate like parts in all the figures.

My present improvements are herein shown applied to an improved bolt-gun described and claimed in my prior applications, Serial No. 443,481, filed August 19, 1892; Serial No. 446,561, filed September 22, 1892; and Serial No. 446,862, filed September 25, 1892. The bolt-gun herein shown and described is of the particular description described in my aforesaid application, Serial No. 443,481. The receiver, or gun-frame, designated in a general way by B, is adapted to carry a sliding bolt, and has a recoil-abutment for sustaining the bolt, when this is closed, against retraction. In the preferred form thereof herein shown, the receiver consists of an open frame having the two side-walls 2 and 4 joined

at their front and rearward ends and constructed to carry the barrel C, and for attachment to the stock, D, of the gun; and also to receive within it the bolt-mechanism. At its front end, the receiver is bored at 3, Figs. 1 and 3, for receiving the threaded end, 5, of the barrel C. A mortise, 6, Figs. 1, 2 and 3, is formed for receiving the upper end of the magazine A, and through which to load the magazine, and also to load the gun when using this as a single-loader; the gun may be used as a single-loader at any time when the magazine is emptied of cartridges. On the inner side of the right-hand wall 2 of the receiver B is formed a groove, 7, in which runs the projecting forward part 10 of the extractor 11, Figs. 1, 2 and 3, which projecting portion of the extractor thereby acts as a guide for limiting the movement of the bolt. Near its rearward end, the bolt, E, is transversely bored to receive the journal of the bolt-actuator, (which is designated in a general way by F.) This actuator has several functions; among the principle of which is the lifting and lowering of the rearward end of the bolt when this is to be moved back and after the same has been moved forward, and to furnish an additional lock for the bolt against rearward movement before this is fully lowered into its closed position ready for firing. Another function of the actuator F, besides holding the bolt E in its closed position, is to prevent the full forward movement of the firing-pin until after the bolt has been carried down into a safe locked position. For these purposes the actuator, or bolt-locker, F, is shown provided with the arm 33, hook 34, handle 35, and with other features, as more fully set forth in my aforesaid application, Serial No. 443,481; but as these features are not material to my present invention, it is not deemed necessary to here recite the complete description of the same. The rearward side, 112, of the depending actuator-arm 33 serves, on the retractive movement of the bolt-actuator, to draw back the firing-pin; on the extreme reaction of the actuator, said arm passes over and engages upon the actuator-locker-catch, 27, of the firing-pin-arm 26, so as to lock the actuator in its retracted position shown in Fig. 1. Said several parts being thus positioned and locked together, may

be drawn back as one member of the gun-mechanism, as illustrated in Fig. 1, and afterward pushed forward, as illustrated by dotted lines in said figure, at which time the firing-pin-arm 26 engages the rearward end 38 of the sear 39, and is thereby held retracted during the remaining forward movement of the bolt-mechanism. This latter forward movement carries the bolt-actuator-arm 33 forward of said firing-pin-catch 27, and thus releases the actuator, which may now be turned forward to close the bolt. The forward end of the bolt E has at its upper side a face, 108, bearing against the corresponding face, 109, of the receiver. On the lifting, or transverse, movement of the rearward end of the bolt, said face 108 acts against the receiver-face 109 as a fulcrum upon which the bolt as a lever turns or swings, for forcibly withdrawing the cartridge for a short distance, by means of the extractor-hook 47 engaging the rim or head, 189, of the cartridge. The bolt, therefore, in the form thereof herein shown, constitutes not only a sliding bolt for the closing of the gun and for pushing forward the cartridges thereinto, but also constitutes a powerful lever for starting the cartridge-shell from its seat within the gun-chamber. The projections, as 20, at the forward end and lower part of the bolt, serve to support the cartridge-head from falling during the retraction of the cartridge by the engagement of the retractor-hook 47 with the rim thereof. Said projections, when the bolt is locked in a forward position, enter two small recesses formed in the rearward end of the barrel. On the barrel, between said recesses, is a projection having a concave face, 50, suitably inclined for receiving the forward end of the cartridge when this is driven forward by the bolt, and for guiding said cartridge upward into the rear of the barrel. At the right-hand inner side of the barrel, a suitable notch should be formed to receive the projecting forward end, or hook, 47, of the extractor.

In Figs. 1, 2 and 3, a short portion of the rearward part 52 of the tip 53 of the gun-stock is shown. On the end of this tip is usually placed the escutcheon-plate 54, which forms a guide for the insertion of the magazine. Through the forward end of said escutcheon passes a screw, 60, which extends through said tip 53 and screws into the forward end of the receiver, as shown in Figs. 1 and 3. The breech-piece 61 of the stock is fitted to the under side of the receiver and between the receiver and the strap 62 of the guard-block 59; the forward end of the breech-piece being fitted within the side-walls of said block. The screw 65 passes through the rearward end of the receiver through the stock, and screws into the rearward end of said strap 62, as will be understood from Fig. 1. The guard-block 59 is centrally mortised at the forward end thereof to receive the magazine-catch 66, which is pivoted at 67, and carries

at its upper end, by a pivot, 68, the ejector-arm 69; which arm is set into a slot formed in the upper end of said magazine-catch, and has an actuating-arm, 71, which reaches upward into the groove 72 formed in the under side of the bolt E. Said groove, at its forward end, is shaped at 73 to form a cam, which on the retraction of the bolt strikes said arm 71 of the ejector and throws this downward into the position shown by solid lines in Fig. 1, thereby ejecting the shell upward through the mortise 6 of the receiver. This cartridge-shell ejector is so arranged with relation to the sliding bolt, receiver and cartridge-case, that it will normally lie between the two columns of cartridges supported upon the follower in the cartridge-case at the rear end thereof without obstructing the free passage of the cartridges upward to the firing-chamber of the gun, and permits the cartridges of each column of cartridges to be fed upward alternately each side of said ejector into proper position to be alternately engaged by the sliding bolt in its forward movement. By this construction and arrangement the cartridge-shell ejector is in axial alignment with the sliding bolt and consequently in the path of movement of the extracted cartridge-shell, so it also acts in the nature of a guide to prevent over-riding impingement of the uppermost cartridges of adjacent columns.

The magazine-catch 66 is shown pivotally-supported or journaled, on two projections set in corresponding sockets, or pivot-bearings, formed in the upper side of the guard-block, and is thereby securely retained in place when the gun is assembled.

The catch-lever 66, designated in a general way as the magazine-catch aforesaid, has on the forward side thereof a catch, or hook, 78, for engaging with the magazine when this is inserted into its receiving-chamber. The lower end of said catch-lever 66 is extended downward and rearwardly to project a short distance within the space 79 within the trigger-guard 80, which guard joins at its front end the front portion of the guard-block, and at its rearward end joins the strap 62 thereof, the guard being generally and preferably made integral with the other portions of the guard-block.

The mortise 81 of the guard-block is extended backward into the strap 62 thereof to receive the trigger 82, which is pivoted at 83, and whose upper end 84 connects with the arm 85 of the sear 39, which is pivoted at 86 in ears, as 88, formed on the guard-block. The stop 89 on the sear limits the upward movement of the sear by striking against the face 90 of the guard-block. The rearward end 38 of the sear is shaped to engage the lower end 27 of the firing-pin-arm 26 when this is moved forward and during the closing movement of the bolt.

For retracting the sear, the sear-spring 94 is inserted thereunder, having its end 95 working in a notch, 96, formed in the sear-

arm 83, as shown. Said spring also is shown having its opposite end seated in a notch, 97, in the rearward side of the magazine-catch, so that the one spring actuates both the sear and the magazine-catch. The forward end 98 of said spring is broadened so as to stand immediately under the flanges 88—88 in which the sear is pivoted, for the purpose of normally preventing any upward movement of the magazine-catch out of its bearing-sockets.

The magazine consists of casing, comprising the two side-walls 170 and 171, the rearward end-wall 172 and the forward end-wall 173; a suitable follower, as L, for supporting the cartridges, and a spring for elevating the follower. This latter feature, the spring, which is designated in a general way by S, is described and claimed in my application, Serial No. 447,531, filed October 1, 1892, to which reference may be had. Said spring is of a "Z-shaped" form, comprising the intermediate arm 173', the upper terminal arm 174, and the lower terminal arm 175, said arms being connected by and through the coiled springs 176 and 177, respectively. In practice, the spring S consists of two members of similar construction and oppositely disposed, these being connected by two wires or rods, 178 and 179, fitting within the aforesaid coiled springs; said spring-arms 173', 174 and 175 consist, therefore, in their preferred form, each of two rods or wires. The lower end of the spring rests upon the inwardly-turned flanges, 180 and 181, of the magazine-case, while the upper end rests against the under side of the platform, or follower, L; said spring-arm having outwardly-turned ends engaging in the grooves 182 and 183 of said follower. In Figs. 1 and 2 the follower is shown in its lowermost position, the spring S being there shown compressed closely together. In Fig. 3 the spring-actuated follower is shown in its uppermost position, after the magazine has been entirely emptied of cartridges, the spring S being here shown expanded throughout its full stroke. The platform, or follower, L, is of the stepped construction shown, in a less perfect form, in my prior application, Serial No. 314,529, filed June 17, 1889. The follower is constructed for supporting two corresponding but independent columns of cartridges located side by side within the magazine-case. One of said columns, shown at the left-hand in Fig. 2, rests upon the lower step, 184, of the follower; while the other column, shown at the right-hand in Fig. 2, rests upon the upper step, 185, this step being elevated above said lower step by a distance substantially equal to one-half the diameter of a cartridge. In practice, the cartridges are allowed to slightly intermesh, as shown in Fig. 2, for the purpose of properly steadying one column against and by means of the other; but there should be sufficient room widthwise within the magazine-case so that the cartridges of one column shall not directly lift those of

the other column. By this means both columns of cartridges are fed upwardly to the top of the magazine without crowding or jamming therein. The uppermost cartridge at the top of one of the columns (this being shown on the right-hand column in Fig. 2) is held between the curved side or lip, 186, of the cartridge-case and the uppermost cartridge 190 (in this case the upper cartridge of the left-hand column in Fig. 2) of the opposite column, the flange of the cartridge extending somewhat above the lower edge of the front end of the bolt E, as shown in Figs. 1 and 2. On pushing forward the bolt, this drives said uppermost cartridge forward, and the point of the cartridge is lifted and guided, by the incline 50, upwardly and into the bore of the barrel C, being at the same time carried above the forward slide-lips 187 and 188 (see Figs. 5 and 8) of the magazine, so that when the cartridge has gone forward somewhat less than half its length into the barrel, as shown by dotted lines at N, Fig. 1, the head, 189, of the cartridge will have been lifted clear of the magazine, ready to be carried upward into position for firing. After firing this cartridge and ejecting the shell, at the next forward stroke of the bolt the cartridge 190, at the top of the opposite column, will be similarly driven forward out of the magazine into the gun-barrel. After exhausting the cartridges in the magazine, the follower is carried up by its actuating-spring to the position shown in Fig. 3, where the rearward end of the upper step 185 stands forward of the bolt E, as shown in said figure, thus making a stop for preventing the forward movement of the bolt, and thus notifying the gunner that the exhausted magazine should be replaced by a loaded one. In this connection it is to be observed that the magazines are intended to be of light and cheap construction, adapted to be furnished ready filled to the soldiers for use, and when exhausted to be thrown away.

Having thus described my invention, I claim—

1. In a magazine-gun, the combination with the gun-frame and with the sliding bolt, of a magazine adapted for receiving a follower and two columns of cartridges, side by side, and having the side-lips 186 formed integral therewith at the rearward upper end of the magazine, which lips are oppositely disposed and substantially parallel, and having relatively short, oppositely disposed, side-lips at the forward end of the magazine, whose adjacent side-edges are only sufficiently remote from each other to leave room for the passage upward between them of a single cartridge, and a spring actuated two-stepped follower capable of supporting two columns of cartridges, side by side, in different planes, and adapted for feeding said cartridges upward to be alternately acted upon by the sliding bolt, substantially as described.

2. In a magazine-gun, the combination with

a suitable gun-frame and with the sliding bolt, of a magazine adapted for receiving two columns of cartridges, side by side, as described, and a double stepped spring-actuated follower, for independently supporting said columns of cartridges at different heights, the upper step of said follower projecting into the path of the bolt on the removal of the last remaining cartridge from the lower step of the follower, substantially as and for the purpose described.

3. In a magazine-gun, the combination with the gun-frame and with the sliding bolt, of a magazine, substantially as described, adapted for receiving two columns of cartridges, side by side, an ejector pivotally secured in the gun-frame and lying normally below the bolt and in a position between the columns of cartridges at the rearward end thereof and below the line of the extracted shell, a double-stepped spring-actuated follower contained in said magazine and constructed for supporting two columns of cartridges, side by side, and adapted for elevating the cartridges of each column at each side of the ejector alternately into position to be alternately engaged by the bolt in its forward movement, and means for actuating the ejector for throwing out the extracted shell, substantially as described.

4. In a magazine-gun, the combination with a bolt-mechanism, substantially as described, having the sliding bolt, of a magazine-case constructed for containing two rows of cartridges, side by side, means for elevating said rows of cartridges simultaneously but independently at different relative elevations, the inclined guide-face 50 and inwardly-projecting lips 187, 188, at the forward end of the magazine, all combined and co-acting, substantially as described and for the purpose specified.

5. In a magazine-gun, the combination with the gun-frame, of the magazine having its sides turned inward at their upper ends to form lips, as described, to prevent the exit of more than one cartridge at a time, a double stepped follower capable of containing two columns of cartridges, side by side, in different planes, a spring to actuate said follower, and the catch-lever 66 to engage the magazine and hold the same within the gun-frame, substantially as described.

6. In a magazine-gun, the combination with the gun-frame and with the sliding-bolt, of the magazine open at its upper and lower ends and having the inwardly projected flanges at its lower end to support the follower-operating spring, and having the oppositely-disposed side lips at its upper rearward end, substantially parallel to each other, and the oppositely disposed side lips at its upper forward end, substantially as and for the pur-

pose set forth, the double-stepped follower constructed to support two columns of cartridges side by side in different planes, the Z-shaped spring supporting said follower and having its lower ends secured in the bottom flanges of the magazine, substantially as described.

7. The combination with the magazine-case, of the follower L having the two longitudinal steps 181, 185, and having its side edges under-lapped to form grooves 182, 183, to receive the ends of the follower-actuating-spring S, and the Z-shaped follower-actuating-spring having its terminal arms bent outwardly and engaging the grooves in the follower, substantially as described.

8. In a magazine-gun, the combination with the gun-frame, its receiver and sliding-bolt, of a magazine removably held in place in said receiver by a spring-actuated catch and having at its upper end inwardly-turned lips or flanges whose adjacent edges are sufficiently close together as to prevent the passage between them of more than one cartridge, a cartridge-supporting follower having an elevated longitudinal portion or step in vertical alignment with, and of less width than, the space between the lips at the upper end of the magazine, said follower being adapted for supporting two columns of cartridges in different planes and to have its elevated step-portion projected through the upper end of the magazine in front of the sliding bolt when the last cartridge is removed therefrom, and means for elevating said follower, substantially as described.

9. In a magazine-gun, the combination with the gun-frame, of the magazine removably secured thereto and having a contracted discharge-opening or mouth at its upper end and inwardly projected flanges at its lower end, the cartridge-supporting follower of a width substantially equal to the internal width of the magazine and having the elevated step 185 in substantial alignment with the mouth of the follower and having the loops or slots 182, 183 on its outer edges, said follower being capable of supporting two columns of cartridges in different planes, and a Z-shaped follower-actuating-spring, comprising the two parallel upper arms, 174, having their free ends bent outwardly and seated in the loops or slots in the follower, the two lower parallel arms, 175, fixed at their lower ends in the bottom flanges of the magazine, the two intermediate arms, 173', and spring coils connecting said intermediate arms with the terminal-arms, substantially as described.

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Witnesses:

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