

No. 853,715.

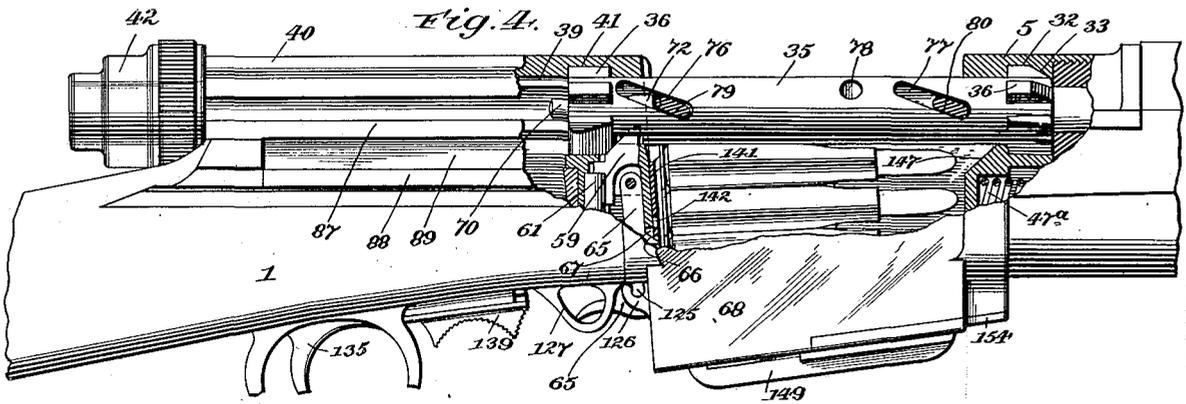
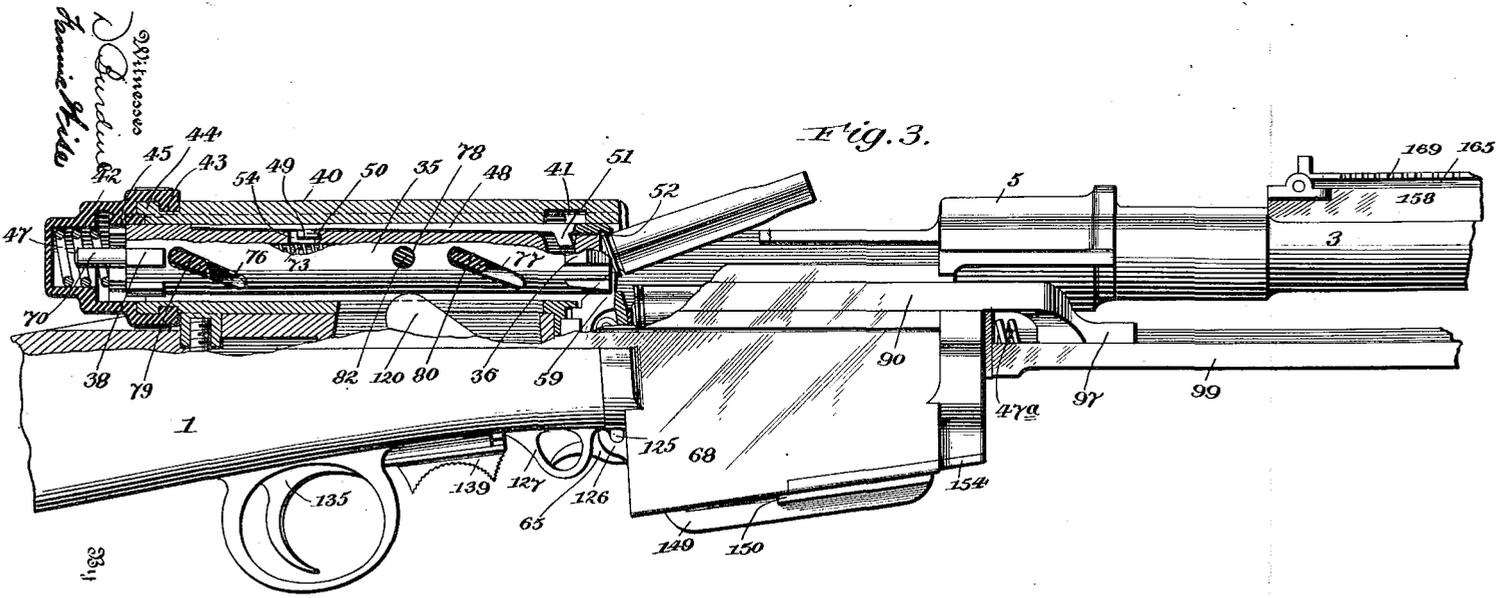
PATENTED MAY 14, 1907.

M. MONDRAGON.

FIREARM.

APPLICATION FILED AUG. 8, 1904.

8 SHEETS-SHEET 2.



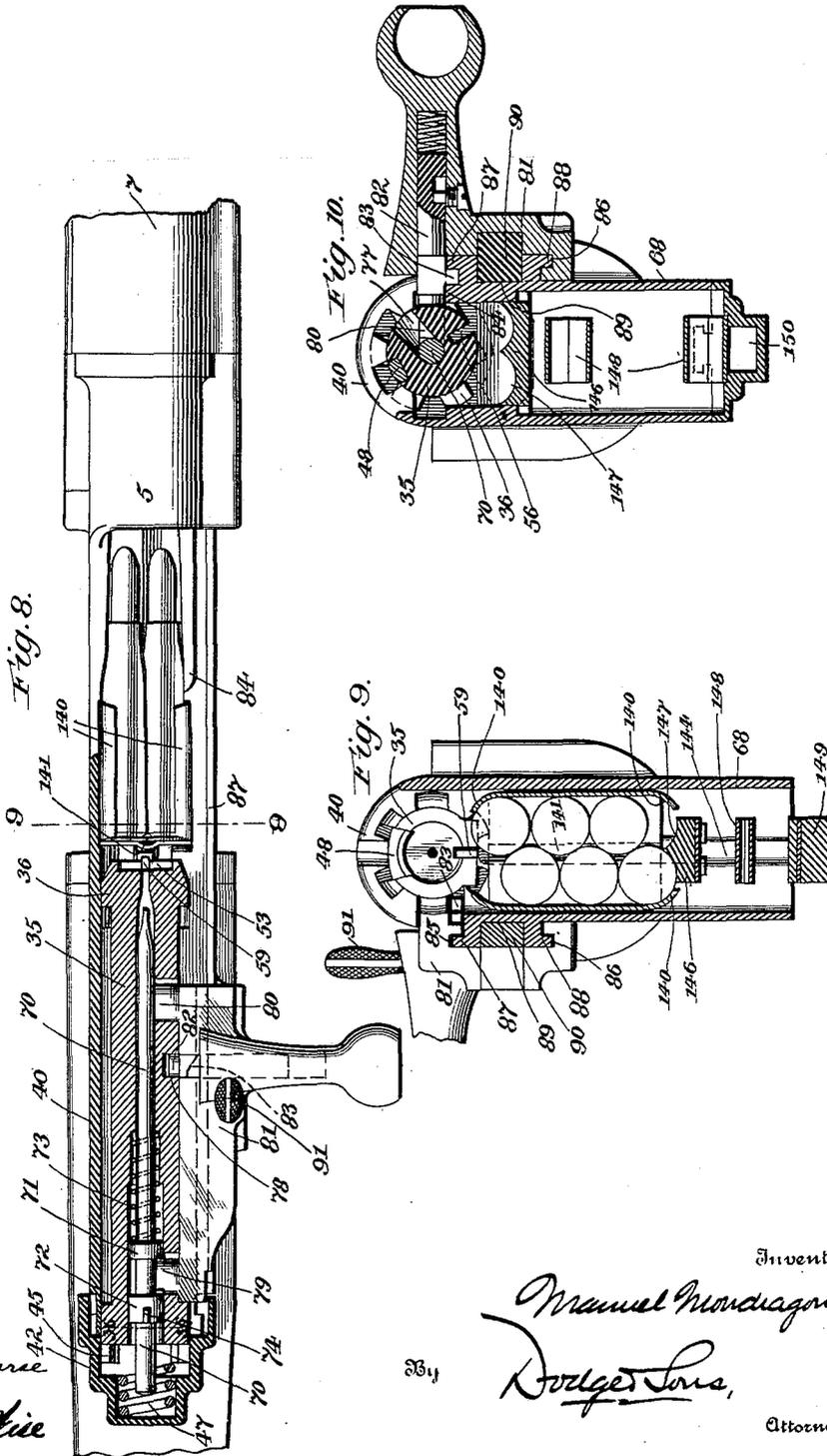
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FIREARM.

APPLICATION FILED AUG. 8, 1904.

8 SHEETS—SHEET 4.



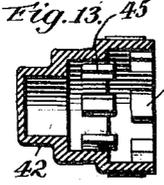
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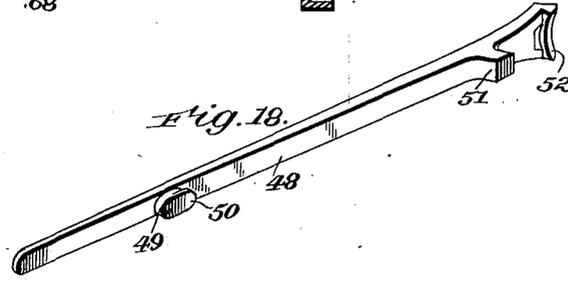
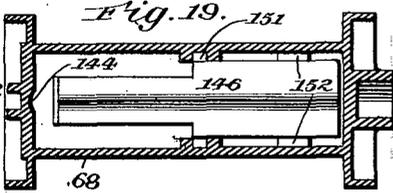
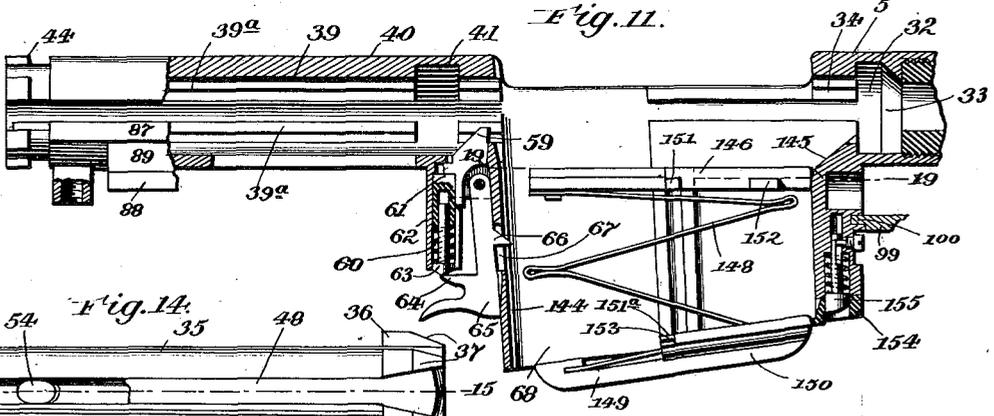
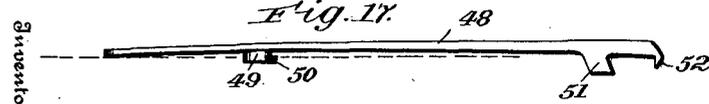
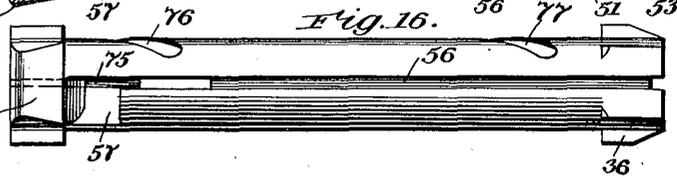
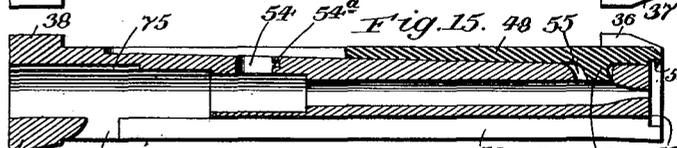
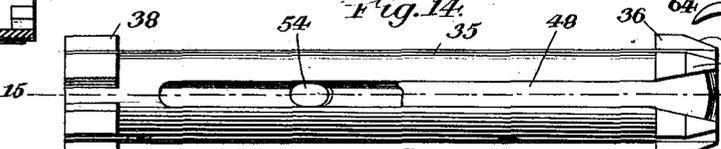
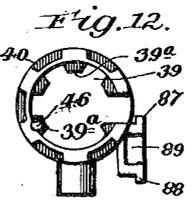
APPLICATION FILED AUG. 8, 1904.

8 SHEETS—SHEET 6.

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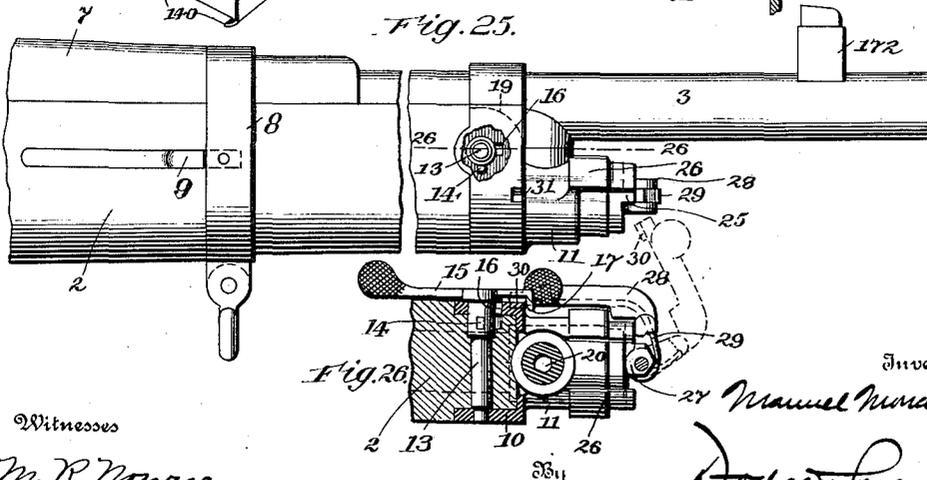
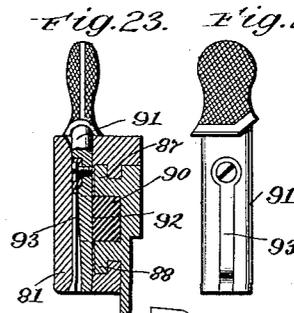
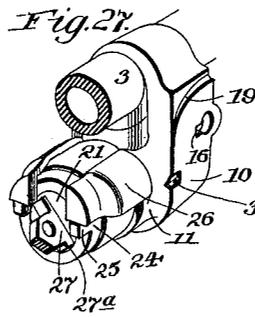
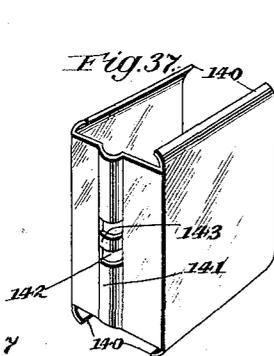
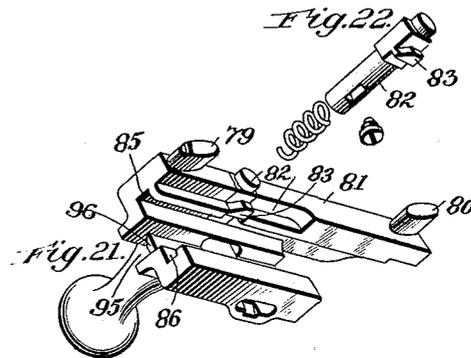
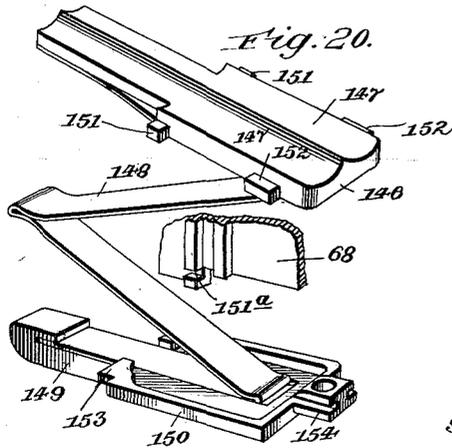
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8 SHEETS—SHEET 6.



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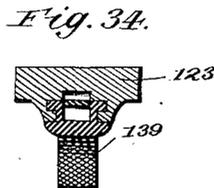
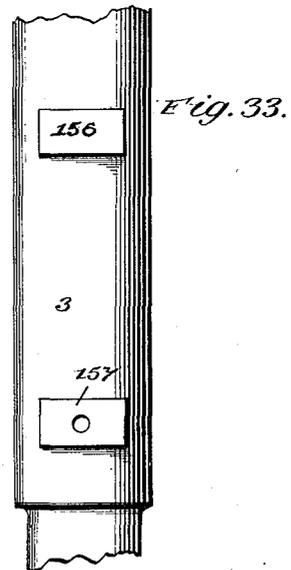
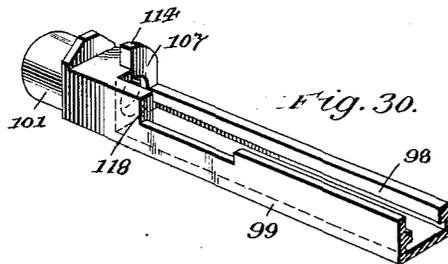
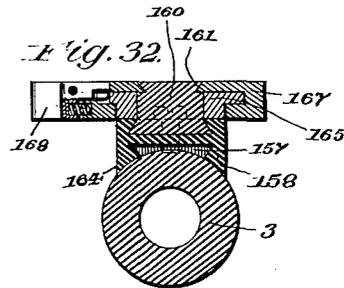
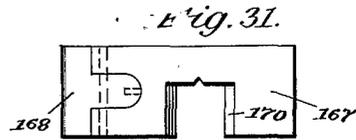
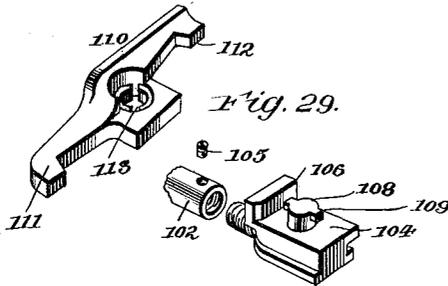
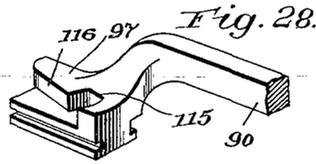
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APPLICATION FILED AUG. 8, 1904.

8 SHEETS—SHEET 7.



Witnesses
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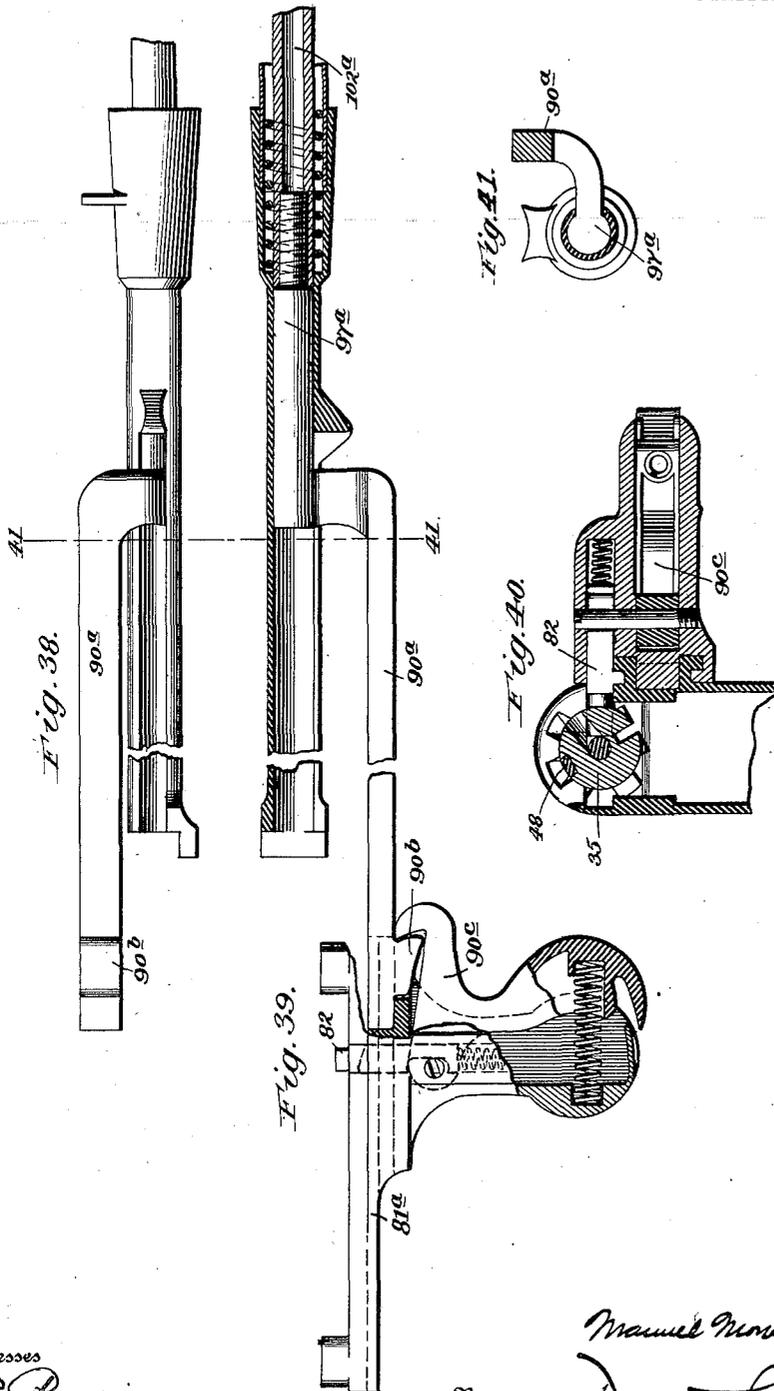
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M. MONDRAGON.
FIREARM.

APPLICATION FILED AUG. 8, 1904.

8 SHEETS—SHEET 8.



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UNITED STATES PATENT OFFICE.

MANUEL MONDRAGON, OF TACUBAYA, MEXICO.

FIREARM.

No. 853,715.

Specification of Letters Patent.

Patented May 14, 1907.

Application filed August 8, 1904. Serial No. 219,989.

To all whom it may concern:

Be it known that I, MANUEL MONDRAGON, a citizen of the Republic of Mexico, residing at Tacubaya, in the Federal District, Mexico, have invented certain new and useful Improvements in Firearms, of which the following is a specification.

My present invention pertains to improvements in automatic firearms, and relates more particularly to that class generally known as or styled "gas-operated", though the arm is equally adapted to be operated manually, either as a single-loader or a repeater.

The invention is illustrated in the accompanying drawings, in which:

Figure 1 is a longitudinal vertical sectional view of the rear portion of the arm; Fig. 2 a similar view, showing the forward portion of the same, and in fact being a continuation of the arm disclosed in Fig. 1; Fig. 3 a side elevation of the arm, with portions thereof broken away, the breech-bolt being shown partly in section and the housing for the same wholly in section; Fig. 4 a similar view, with the breech-bolt moved forward and locked in position ready for firing; Fig. 5 a perspective view of the operative mechanism of the gun, the forestock being omitted; Fig. 6 a perspective view of the runner-bar or actuating-rod and its connections, seen from the side opposite to that shown in Fig. 5; Fig. 7 a vertical transverse sectional view on the line 7—7 of Fig. 6; Fig. 8 a longitudinal sectional view of the bolt, showing the parts in their retracted position, the actuating or handle-block being shown in full lines; Fig. 9 a vertical sectional view, taken on the line 9—9 of Fig. 8; Fig. 10 a similar view on the line 10—10 of Fig. 5; Fig. 11 a vertical sectional view showing the magazine, the ejector and the housing for the breech-bolt; Fig. 12 an end elevation of the housing; Fig. 13 a longitudinal sectional view of the cap or closure for the rear end of the housing; Fig. 14 a top plan view of the bolt; Fig. 15 a longitudinal sectional view, taken on the line 15—15 of Fig. 14; Fig. 16 a plan view of the bolt as seen from the under side; Fig. 17 a side elevation of the extractor; Fig. 18 a perspective view thereof as seen from the under side or face; Fig. 19 a horizontal sectional view, taken on the line 19—19 of Fig. 11; Fig. 20 a perspective view of the bottom plate of the magazine, the spring and elevating-plate for

the cartridges; Fig. 21 a perspective view of the actuating or handle-block; Fig. 22 a perspective view of the locking-pin and its related parts; Fig. 23 a vertical sectional view, taken on the line 23—23 of Fig. 5; Fig. 24 a side elevation of the locking-pin which connects the actuating or handle-block to the runner-bar or actuating-rod; Fig. 25 a side elevation of the forward portion of the gun, showing the forestock in position; Fig. 26 a horizontal sectional view on the line 26—26 of Fig. 25; Fig. 27 a perspective view of the forward portion of the gun, the barrel being broken away and the valve-handle omitted; Fig. 28 a perspective view of the forward end of the runner-bar or actuating rod; Fig. 29 a similar view of the latch and the block upon which it is pivotally mounted; Fig. 30 a perspective view of the forward portion of the runway or guiding member for the actuating-rod or runner-bar; Fig. 31 a plan view of the sight-slide; Fig. 32 a vertical transverse sectional view on the line 32—32 of Fig. 2; Fig. 33 a top plan view of a portion of the barrel, showing the lugs which hold the sight; Fig. 34 a vertical sectional view on the line 34—34 of Fig. 1; Fig. 35 a detail perspective view of the forward portion of the trigger-plate; Fig. 36 a sectional view on the line 36—36 of Fig. 8 of the bolt and firing-pin; Fig. 37 a perspective view of the cartridge-clip; Fig. 38 a side elevation of a modified construction of the runner-bar and its connections; Fig. 39 a horizontal sectional view thereof, showing a modified form of actuating or handle-block used in conjunction with said runner-bar; Fig. 40 a vertical sectional view, taken through the handle, and showing the connection thereof with the breech-bolt; and Fig. 41 a transverse sectional view, taken on the line 41—41 of Fig. 38.

My present invention, except as to certain details of construction, is an improvement upon that set forth in my co-pending application filed on or about the 6th day of May, 1902, Serial No. 106,177.

The main object of the invention is to perfect certain details of the structure shown in the application above referred to, and to render the arm generally more efficient.

The improvements will be noted in the following description, and those features which are essentially novel and not modifications of the former construction will likewise be set forth in detail.

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Referring to Figs. 1 to 37 inclusive of the drawings, 1 denotes the stock of the gun; 2 forestock, the and 3 the barrel, the forestock being cut away at its rear end (see Fig. 1) and fitting into a recess or socket 4 (Figs. 1 and 5) formed in the forward under face of the frame 5. The upper front face of said frame is provided with a recess or socket 6, for the reception of the rear end of the upper member 7 of the forestock. The two portions of the forestock are held in position around the barrel, and the member 2 about the gas-chamber (hereinafter referred to), by a sleeve or collar 8, which slips over said parts and is held in place by spring-catches 9 (see Fig. 25), which are recessed in the sides of the member 2. A second sleeve or collar, 10, covers the forward end of the member 2. A projection 11, formed on said member 10 fits around the outer end of the gas-receiving cylinder or chamber 12. Said sleeve or collar 10 is retained in its position by a through-pin 13 (see Figs. 2 and 26), the pin being reduced at one end and entering a hole formed in the sleeve or collar, while the other end is somewhat enlarged and is provided with a laterally-extending lug or projection 14, which, when the pin or key is turned by the lever 15 attached thereto, passes beneath the inner face of the collar 10 and out of line with the slot 16 formed in said member 10 through which the lug or projection passed when the pin was inserted in place.

The lever or handle 15 is provided with an inwardly-projecting nose 17, which passes over a cam or raised face 19 formed upon the sleeve or collar 10 as the pin is rotated and the lever 15 carried from a vertical to a horizontal position. When in the latter position the nose 17 will have passed off the cam face and the pin be held against rotation except upon the application of force to the outer end of lever 15.

The gas-chamber 12 is in communication with the barrel near its outer end through an opening 20 (Figs. 2 and 26), the passage of the gas through said opening being controlled by a rotary valve 21, provided with a port 22, which permits communication between the valve and the gas-chamber, as indicated in Fig. 2. The valve is also provided with a second port or opening, 23, which, when the valve is rotated to a position opposite that shown in Fig. 2, will be in communication with the atmosphere, and communication between the gas-chamber and barrel will be cut off.

In order to keep the valve to its seat in the forward end of the gas-chamber, I employ a bushing or collar 24, which is screwed into the end of said chamber (as best illustrated in Fig. 2), said collar being provided with lugs 25, which bear against the under faces of the outwardly-projecting members or arms 26 of the sleeve or collar 10. These arms 26,

therefore, prevent the bushing 24 from rotating so long as the sleeve or collar is held in place, and consequently the valve is always retained in proper position within the forward end of the gas-chamber.

The valve is provided with a stem 27, to which is pivotally attached an L-shaped lever 28. This lever carries a spring 29, which bears upon the inclined faces on the outer end of the stem 27, serving to hold the lever depressed, as in the position shown in full lines in Fig. 26, or in an elevated position, as indicated in dotted lines in said figure. The stem 27 is provided with a lateral projection 27^a or made of such width that the valve may be turned through but half a revolution, since the stem or projection comes into contact with one or another of the arms 26, the arrangement being such that one or the other of the ports 22, 23 will be brought into alinement with the opening or passage 20. The outer end of lever 28 is provided with a lug or finger 30 (Fig. 26) which will enter one or the other of two oppositely-disposed seats or depressions 31 formed in the sleeve or collar 10. Thus it will be seen that the valve will always be brought to and maintained in proper position.

The rear end of the barrel 3 is secured to the frame, as shown in Fig. 1, the frame being made sufficiently heavy at this point to be provided with a groove or channel 32, having an inclined face 33 adjacent to the end of the barrel, and likewise provided with a series of ribs 34 (Fig. 11). The breech-chamber thus formed is designed to receive the forward end of the breech-bolt 35, said bolt being formed at its forward end with ribs 36, having inclined faces 37, ribs 36 passing in between ribs 34 and fitting within the groove 32 and against the face 33 when the bolt is shoved to place and rotated, as hereinafter described. The rear end of the bolt is provided with a series of laterally-extending ribs or projections 38, which work in corresponding grooves 39 formed in the housing or rearward extension 40 of the frame. The forward end of said housing is provided with an internal groove or channel 41, see Fig. 3, into which ribs 38 pass when the breech-bolt is moved forward to the position shown in Figs. 1 and 4. The rear end of the housing is closed by a cap 42, provided with lugs 43, which interlock with similar lugs 44 formed upon the rear end of the housing, as best shown in Fig. 11. The cap is also provided with a second series of lugs 45, which when the cap is in place and rotated come into alinement with ribs 39^a, intermediate the grooves 39 formed in the housing 40. A spring-pressed pin 46 is mounted in one of said ribs 39^a and takes into a socket or recess formed in the face of the corresponding lug 45. This socket or recess is shown in dotted lines in Fig. 1.

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A coiled spring 47 (Figs. 3 and 8) is placed in the cap 42, and is in direct alinement with the rear end of the breech-bolt, serving as a buffer therefor.

The breech-bolt is provided with an extractor 48, best shown in Figs. 14, 15, 17 and 18. Said extractor comprises a spring-plate having a downwardly-depending lug 49 near its rear end, which lug has a lip 50 formed thereon. A second lug or finger, 51, is formed upon the under face of the extractor near its outer end. Said end is widened, as clearly shown in Figs. 14 and 15, and is provided with a downwardly-projecting lip 52 which, when the extractor is in its normal position, lies within a recess 53 formed in the forward end of the breech-bolt, and into which the head of the shell or cartridge projects when the bolt is closed, as shown in Figs. 1 and 4.

A recess is formed in the outer face of the breech-bolt for the reception of the extractor, and there is an elongated opening 54 (Figs. 14 and 15) in the bolt in line with said recess, a second opening 55 being also provided at its forward end.

As will be seen upon reference to Fig. 17, the extractor is curved or bowed slightly, and when put in position the lug 49 passes into the opening 54 and lug 51 enters opening 55. A slight downward and forward pressure upon the extractor will then cause the lip 50 to pass into a socket 54^a, while at the same time the lug 51, which is given a slight forward inclination, will bind against the forward wall of the opening 55. When the parts are thus positioned, the rear end of the extractor will have passed down into the recess and the body thereof will lie flush with the outer face of the bolt. The lip 50 locks the extractor in place, but by reason of the inclination given to the opening 55 and lug 51, lip 52 will pass over the end of the cartridge and into the groove formed around the same as the bolt is pushed to place or closed.

The bolt, as will be seen upon reference more particularly to Figs. 15 and 16, is provided with a groove or channel 56, extending longitudinally thereof from the forward end and terminating in a lateral opening or enlargement 57, just in rear of the forwardly-beveled or broad-faced projection or lug 58. The groove 56 is designed to receive the upper end of the ejector 59 (see Figs. 1, 3, 4, 9 and 11), the forward face of which is in a vertical plane, while the rear face is inclined.

When the bolt is moved to its forward position, or that shown in Fig. 4, and is rotated in the manner hereinafter described to lock it in place, the upper end or nose of the ejector will pass into the enlargement or opening 57. The ejector is held in its upright position by a spring 60 (see Fig. 11) which bears upon the lower end of a stem 61, mounted in a

downwardly-projecting sleeve or chamber 62, said stem being made hollow for the reception of the stem of a pin 63, the head of which pin bears upon a shoulder 64 on a pivoted latch or lever 65. This latch is provided with a nose or projection 66, which extends through an opening 67 into the magazine or clip-receiving chamber 68. The purpose of this latch will be hereinafter set forth. Spring 60 thus serves to keep the ejector in its elevated position, and at the same time to throw the latch forwardly and project the nose 66 through the opening 67.

A firing-pin 70 is centrally mounted in the bolt, said pin having two collars 71, 72 formed thereon. A spring 73 is interposed between the forward face of collar 71 and a shoulder formed on the bolt, said spring tending normally to force the pin back to the position shown in Fig. 8.

A lug 74, shown in Figs. 8 and 36, works in a slot or groove 75 formed in the inner face of the bolt (see Fig. 15), said lug serving to properly position the firing-pin in the bolt and bring a cut-away portion 75^a in the lower face of the collar 72 into alinement with the opening 57, to accommodate the upper end of the ejector 59.

The bolt is provided upon its side face with two helical or spirally-disposed openings 76 and 77, and with a socket or depression 78. Inwardly-projecting lugs or fingers 79 and 80, preferably formed as integral parts of the actuating or handle-block 81, extend into the openings 76, 77, and a spring-actuated pin 82, carried by the block, fits in the socket or depression 78 until the bolt nearly reaches the limit of its forward movement. The pin is also provided with a beveled nose or lug 83, standing in the path of a cam 84 (Fig. 8) which serves to force the pin inwardly, and thus withdraw the same from the socket or depression 78, thereby permitting the bolt to be freely acted upon by the lugs or fingers 79, 80 as the bolt approaches the limit of its forward movement. By reason of the inclination of the openings 76, 77 and fingers 79, 80, the bolt will be given a rotary movement after it has reached the limit of its forward travel, the actuating or handle-block 81 moving forward a slight distance independently of the bolt after the pin 82 has been released, thereby permitting the lugs to travel through the length of the openings and causing the rotation just noted. This rotation will cause the locking of the lugs of the bolt behind the lugs formed on the frame. The lug 79 is provided with a squared face upon its rear side, which has its bearing against the forward face of the collar 72, said lug at all times extending between the collars 71 and 72.

As the bolt is moved forward, the lug 79 holds the firing-pin and bolt in the position shown in Fig. 8, but as the bolt reaches its

seat and is locked therein, the lug advances the firing-pin to the position shown in Fig. 1, and the gun is then ready for firing.

The actuating or handle-block is provided with oppositely-disposed recesses or ways 5 85, 86, which embrace tracks or ways 87, 88 formed upon one side of the frame. A track or channel 89 is formed upon the outer side of the frame, (intermediate the tracks or 10 ways 87, 88,) in which works the rear end of a runner-bar or actuating-rod 90, shown most clearly in Figs. 5 and 6. Said rear end is connected to the handle or actuating block 81 by a pin 91 (see Figs. 5, 23 and 24) which 15 passes down through an opening formed in the block and into a socket or recess 92 in the side face of the runner bar. The pin 91 is provided with a spring-finger 93, the free end of which binds against an inclined face formed at 20 the lower end of a recess in the actuating or handle-block and serves to keep the pin in position. The runner-bar or actuating-rod is provided with a lug or projection 94, which is undercut (as best shown in Fig. 6), said lug 25 fitting into a recess 95 (see Fig. 22) and overlying a correspondingly-beveled face 96, thus serving to more securely lock the runner-bar and actuating or handle-block together. The forward end of the runner-bar is curved 30 downwardly and inwardly beneath the barrel, and is provided with a shoe or foot-piece 97, having recesses or ways formed in its side face which work in conjunction with guides or tracks 98 formed upon the side walls of a 35 supporting and guiding member 99. The rear end of said member 99 is provided with a lug 100, which fits into a corresponding recess formed in the front face of the frame of the gun. The forward end of the member 99 40 is provided with a tubular extension 101, which makes close telescoping connection with the rear end of the gas-chamber or cylinder 12, as is best shown in Fig. 2. Mounted within said gas-chamber or cylinder is a 45 piston-rod 102, carrying at its forward end a piston 103, preferably composed of a series of split rings and interposed washers, which form a close joint with the gas-chamber. The rear end of the piston-rod extends 50 through an opening formed in the head of the supporting member 99 and is connected to a block 104, shown in detail in Fig. 29. The rod is screwed upon a threaded stud carried by the block, being held in position by a set- 55 screw 105. The block is also formed with guides or ways which work in conjunction with the tracks 98 of the supporting member 99. It is further provided with an upstanding wall 106 at its forward end, which, when 60 the piston is at the forward limit of its movement, abuts against the upright face 107 of the head of the supporting member 99. The block is also provided upon its upper face with a stem or post 108, having laterally- 65 projecting lugs 109 at its upper end. A

coupling member 110, having hooks 111 and 112 at its opposite ends, is mounted upon the stem or post 108, notches or recesses 113 being provided adjacent to the central opening formed in the coupling member in order 70 that it may be passed down over the lugs 109, and when rotated into proper position the lugs will pass out of line with said notches or recesses and lock the coupling member against removal from the stem or post. 75

When the coupling member is rocked, in the act of withdrawing the runner-bar by hand, the hook 112 will pass behind an upstanding post 114 formed as a continuation of the face 107 of the head of the supporting 80 member 99. The hook 111 passes into a recess 115 formed in the upper face of the shoe 97, said shoe being provided with an inclined face 116 leading to said recess 115 in order that the coupling member may be readily 85 swung about its pivot as the runner-bar is moved forwardly into engagement with the coupling member, as shown in Fig. 5.

The upright wall of the supporting member 99 is cut away adjacent to the rear end of 90 the coupling member, in order that the latter may be swung outwardly as it is engaged by or disengaged from the shoe of the runner-bar, see Fig. 6.

In the act of retracting the runner-bar 95 from engagement with the coupling member 110 the latter is swung sidewise, the downwardly-projecting shoulder 117 (Fig. 6) bearing against the adjacent upstanding wall 118, Fig. 30, of the supporting member, which wall 100 118 forms a fulcrum for the coupling member.

The forward face of the shoe 97 has a fair bearing against the adjacent side of the 105 block 104, so that when the piston is forced rearwardly by the spent gases, the runner-bar will be positively actuated. The return movement of the piston is effected through the agency of a coiled spring 119, interposed 110 between the piston and forward end of the supporting member 99. The upstanding wall of the member 99 prevents the coupling member 110 from turning except when in its extreme forward position, and consequently 115 the hook 111 is in the recess 115 of the shoe 97 when the runner-bar is forced rearwardly by the expended gases and when it is drawn forwardly by the spring 119.

As the piston-rod is moved forward by the 120 action of the spring 119, it carries with it block 104, the coupling member mounted thereon, and the runner-bar, and consequently the bolt and actuating or handle-block, which latter is attached to said runner-bar. 125

The hammer 120 is fulcrumed at 121 between two upstanding lugs 122 extending from the upper face of the removable tang or trigger-carrying plate 123. The forward end of said plate is provided with two arms 124 130

(Fig. 35), each having a rounded projection 125 at its forward end, which projections engage hooks 126 extending rearwardly from the wall of the magazine or clip-receiving chamber 68, one upon each side of the latch 65. Guards 127, extending downwardly from said arms, prevent the accidental actuation of the latch. A bar or rod 128 is pivotally connected to the hammer 120, said bar extending rearwardly therefrom and passing through an opening formed in an upright or post 129. A spring 130 encircles the rod, bearing against a collar or shoulder formed thereon and the forward face of the upright or post 129. The rod is provided near its rear end and upon the upper face thereof with a notch into which passes the lower end of a sear 131, pivoted in the upper end of the post 129. The sear is normally held down upon the face of the rod by a spring 132, which is mounted in a recess formed in the upper portion of the sear, the spring bearing at one end against the upper extremity of the post 129 and at its opposite end upon the inner wall of the recess. A dog 133 is pivotally mounted upon an outer extension of the sear and is normally thrown over the end of the actuating lug 134 of the trigger 135 by a spring 136 which is mounted in a recess formed in the upper end of the sear, and bears at its outer end upon the upper extremity of said dog. The latter is provided with a stop 137 which abuts against the under projecting face of the sear and prevents the dog from swinging out of alinement with the lug 134.

In Fig. 1 the hammer is shown as cocked. It is swung down into such position by the firing-pin and the bolt, the rear end of said pin bearing against the upper end of the hammer during the initial rearward movement of the actuating or handle-block, the bolt through its lug 58 causing the complete depression of the hammer as it passes over the same.

As will be noted upon reference to Fig. 1, the upper end of the hammer projects into the housing in line with the lug 58 formed upon the bolt. As the latter is moved forward the beveled face of said member 58 bears upon the rounded upper end of the hammer to a slight extent and depresses the same, the hammer immediately assuming the position shown in Fig. 1, and as the bolt passes out of contact therewith, the sear will engage the notch in bar 128.

While the parts may be so proportioned that the hammer when cocked will pass beneath or just out of the path of travel of the bolt, the construction shown is deemed preferable, for the reason that it insures a sufficient movement of the hammer to cause engagement of the sear therewith when the bolt is retracted.

The trigger is held in its normal depressed

position by a spring 138, and may be locked in such position by a safety slide 139, thus preventing discharge of the gun.

As above noted, the arm may be operated either as a single-loader or a repeater, and a clip designed to hold a series of cartridges is employed when their use is required. A peculiar construction of clip is shown, which may be filled and placed in position but held out of operation and the gun used as a single-loader until it be desired to throw the clip and its charge into place. To this end I employ a clip of the form illustrated in Figs. 1, 4, 9 and 37, wherein it is shown as provided with inturned edges 140 at the upper and lower sides, and with a swell or enlargement 141 which extends outwardly from the rear face thereof. Openings 142 are provided in said swell, thus forming a cross-bar 143. A groove or channel 144 is formed in the rear wall of the magazine or clip-receiving chamber 68, and when a clip is placed in position therein the swell or enlargement 141 fits in said groove or channel, the nose 66 of the latch 65 entering one or the other of the openings 142 according to the extent to which the clip with its charge is forced downwardly in the magazine. In Fig. 1 the nose is shown as passing into the lower opening, in which position the uppermost cartridge will be in alinement with the forward face of the bolt, as indicated in Fig. 9, so that as said bolt is moved forwardly the upper cartridge will be forced out of the clip, upwardly over the inclined face 145 and into position in the breech of the gun.

A presser-plate 146, having seats or depressions 147 formed in the upper face thereof, bears against the lowermost cartridge in the clip and forces the cartridges upwardly through the clip by the action of a leaf-spring 148, the upper end of which is attached to plate 146 while the lower end is secured to a rearwardly-projecting arm 149 of a bottom plate 150. This arm and plate are of such width that after the clip is emptied it may pass out through the bottom of the magazine or clip-receiving chamber as another clip with its charge is inserted. The presser-plate 146 is provided with laterally-projecting lugs 151 (see Figs. 19 and 20) which work in ways formed in the side walls of the magazine, thereby preventing endwise movement of the presser-plate, which might take place under the action of the leaf spring if not prevented. Spacing lugs 152, extend outwardly from the side faces of the presser-plate and bear against the walls of the magazine, thus preventing lateral deflection of the presser-plate. In other words, these two sets of lugs insure the proper movement of the presser-plate under the stress of the spring. The bottom plate 150 is provided with laterally-extending lugs 153 (see Figs. 11 and 20) at the rearward end of its broad

portion, said lugs passing into recesses or notches 151^a formed in the lower portion of one of the ribs, which provide ways for the lugs 151, see Fig. 20. Said plate is likewise provided with an undercut tongue 154 (Figs. 5 and 20) which passes into a suitable recess formed in the forward wall of the magazine or chamber, a spring-pressed pin or bolt 155 entering an opening formed in said tongue (Figs. 1 and 11) and serving to lock the bottom plate in position. By merely pressing the pin or bolt inwardly the bottom plate may be moved endwise and the tongue and lugs drawn from engagement with the corresponding interlocking parts.

The barrel is provided with two lugs 156, 157, which are undercut as shown in Fig. 32 and designed to receive a plate 158 formed with complementary projections, so that it may be slipped endwise over the lugs and thus held thereon. In the upper face of said plate is formed a channel or recess, the forward end of which is undercut and designed to receive a spring-arm 159, at the forward end of which is provided a stem or post 160, having undercut grooves 161, as best shown in Fig. 5. A screw 162 is passed down through the plate 158 and into the forward lug 157, as best indicated in Fig. 32. This screw serves to hold all the parts in proper position, the rear end of plate 158 (when the same is moved backward to its full extent) abutting against a shoulder 163 formed upon the barrel. The plate is likewise provided at its forward end with a depending portion 164, which extends in front of the lug 157, thereby making a close fit and neat finish at this point.

A sight-frame 165 is pivoted to the rear end of plate 158, a cam surface 166 formed on the lower portion of the frame bearing against the upper end of the spring-arm 159 and serving to hold the frame in its upright or depressed position according as the cam is thrown to one or the other side of the pivot-point of the sight-frame.

A slide 167 is mounted upon the frame 165, and is provided with a pivoted latch or thumb-piece 168, which engages notches 169 formed in the side or edge of the frame 165, thus locking the slide 167 in its adjusted position. As will be seen upon reference to Fig. 31, the edges 170 of the slide adjacent to the central cut-away portion thereof are beveled or inclined, so that when the sight-frame is swung down to the position shown in Fig. 32 the slide may move outwardly along the same, and said beveled edges will pass into the grooves 161 formed in the post 160 and thus lock the sight-frame against upward movement. A screw 171 (shown in dotted lines in Fig. 5) prevents the slide from being moved off the frame. The usual forward or standing sight 172 (Figs. 2 and 25) is provided.

In Figs. 38 to 41 inclusive a slight modification of the invention is shown. In this case the rear end of the piston-rod 102^a is connected to a shoe or runner 97^a formed as an extension of the runner-bar or actuating-rod 90^a, said rod having a hook 90^b formed at its rear end. The actuating or handle-block 81^a is provided with mechanism for operating the breech-bolt, shown in this instance as a spring-pressed latch or hook 90^c which, when the arm is operated manually, will be withdrawn from engagement with the hook 90^b as the actuating or handle-block is drawn backward in the act of opening the breech. As will be noted upon reference to Fig. 39, the rear end of the runner-bar or actuating-rod 90^a has a fair bearing against a shoulder formed on the actuating or handle-block, so that when the gun is operated by the spent gases the breech-bolt will be positively actuated by the movement of the handle-block and runner-bar. This construction obviates the necessity for the use of the coupling member 110 hereinbefore described.

The operation of the arm shown in Figs. 1 to 37 inclusive is as follows: A clip, with the cartridges therein, is placed in the magazine, the presser-plate 146 being forced down by the lowermost cartridge in the clip. If it be designed to use the gun as a single-loader, with the cartridges in the clip held in reserve, the clip is pushed downwardly until the pivoted latch 65 passes into the uppermost opening 142 formed in the clip. In this position the upper cartridge carried by the clip will be out of line with the forward end of the breech-bolt and consequently cannot be drawn from the clip by the bolt as it is moved forwardly. The gun may then be loaded by hand, as a single-loader, at which time, of course, the valve 21 is rotated so as to bring port 23 into communication with opening 20, thereby venting the spent gases to the atmosphere and throwing the piston 103 and its connected parts out of operation. A cartridge having been inserted, the bolt is moved forwardly by the actuating or handle-block 81, the pin 82 carrying the breech-bolt in the same direction until the cam face 84 comes into contact with the beveled nose 83 on the pin, and withdraws the latter from engagement with the bolt. The bolt at this moment will have been carried fully forward, the ribs 36 thereon having entered the groove 32, while the ribs 38 on the rear portion of the bolt will have passed into groove 41. By reason of the further forward movement of the actuating or handle-block, the inclined lugs or fingers 79 and 80 will cause the bolt to be rotated, and consequently the ribs on the bolt will pass behind the corresponding ribs formed on the frame, thereby locking the bolt against endwise movement. The parts will then assume the positions shown in Fig. 1, except that the clip or holder will be de-

pressed to a greater extent and the nose 66 of the latch will be in the upper opening 142 of the clip, as heretofore noted. The arm may then be discharged, the hammer driving the pin forward and exploding the cartridge. Upon the withdrawal of the bolt by the retrograde movement of the actuating or handle-block, the bolt will first be rotated, unlocking the same, and then moved rearwardly, the lip 52 of the extractor 48 drawing the shell out of the breech and carrying it rearwardly until it comes into contact with the forward face of the ejector 59, when it will be thrown upwardly and outwardly, as indicated in Fig. 3. As the bolt is moved rearwardly, it will come into contact with the upper end of the hammer 120 and cause the same to be swung downwardly into the position shown in Figs. 1 and 3, at which time the bar or rod 128 will have moved against the action of the spring 130 to such an extent as to permit the sear 131 to be thrown into engagement with the recesses formed in the upper face of said bar, thereby holding the hammer in its cocked position ready for the next discharge. If it be desired to use the arm as a magazine-gun,—although manually operated,—it is only necessary to withdraw the latch 65 from the upper notch or opening in the clip and allow spring 148 to move the clip, with the cartridges therein, upwardly to a position in which the uppermost cartridge will be in line with the bolt as it is moved forwardly. The cartridges will be continuously fed into alinement with the bolt until the clip is emptied, when the latter may be forced out through the lower portion of the clip-receiving chamber by the insertion of another clip from above, the upper beveled face of the nose 66 permitting the clips to be moved downwardly, it being unnecessary to withdraw the latch 65 by hand. In case it be desired to operate the gun automatically, the position of valve 21 is changed so as to bring opening 20 into alinement with port 22, or into the position shown in Fig. 2. Upon the discharge of the gun, the spent gases will pass through opening 20 into the port 22 and cause a rearward movement of the piston and piston-rod. Inasmuch as the opening 20 is located near the outer end of the barrel, the projectile will have attained its full velocity and no detrimental effect will result from the use of the spent gases to force back the piston and its rod. As said rod moves rearwardly it carries with it the block 104, and this will also force the shoe and runner-bar in the same direction. The runner-bar being connected to the actuating or handle-block, said block with the bolt will be forced rearwardly, and the empty shell withdrawn from the breech and automatically ejected from the gun. The buffer springs 47 and 47^a (the latter located in the socket or recess formed

in the forward face of the frame in line with the runway for the shoe 97), will take up any shock or jar which might otherwise result from the forcible movement of the parts. The spring 119 which surrounds the piston-rod and has now been compressed, will next come into action and force the piston forward, carrying with it the piston-rod and runner-bar connected therewith by means of the coupling-member 110. The actuating or handle-block and bolt will also be carried forward, the latter being moved to its closed position, rotated and locked in place. The same cycle of operations is repeated upon the next discharge of the gun, it being then only necessary for the user to manipulate the trigger.

With the construction shown in Figs. 38 to 41 inclusive the same operation as that just described takes place, the pivoted hook 90^c serving the purpose of the coupling member. In other words, the coupling is made at a point more remote from the piston.

No claim is herein made to the construction of the sight, that being reserved for a future application.

Having thus described my invention, what I claim is:

1. In a breech-loading firearm, the combination of a barrel; a gas-receiving chamber located adjacent thereto and communicating therewith; a rotary valve mounted in the forward end of said chamber and controlling the passage between said chamber and the barrel; a collar screwed into the forward end of the gas-chamber and holding the valve in place, said collar having outwardly-extending lugs; a sleeve secured about the forward end of the gas-chamber, said sleeve having outwardly-projecting arms which abut against the lugs on the collar and thus prevent the collar from turning; and means for properly positioning the valve.

2. In a breech-loading firearm, the combination of a barrel; a gas-receiving chamber underlying and communicating with the same; a rotary valve mounted in the forward end of the gas-chamber and having two ports, one opening communication between the barrel and gas-chamber, and the other venting the barrel to the atmosphere; a collar or bushing mounted in the forward end of the gas-chamber and holding the valve in place, said collar having outwardly-extending lugs at its forward end; a sleeve embracing the barrel and the forward end of the gas-chamber, said sleeve having outwardly-projecting arms, the ends of which overlie the end of the collar and abut against the lugs thereon; and an actuating handle for the valve.

3. In a breech-loading firearm, the combination of a barrel, a gas-receiving chamber in communication therewith; a valve for controlling the passage of gas from the barrel to

said chamber; a lever for operating said valve; and means for holding the lever in its adjusted position.

4. In a breech-loading firearm, the combination of a barrel; a gas-receiving chamber in communication therewith; a valve for controlling the passage of gas from the barrel to said chamber; a stem or post extending outwardly from said valve, and having inclined faces upon its outer end; a lever pivoted on the post and provided with a lug 30 at its outer end; and a spring carried by the lever, the free end of said spring coacting with the inclined faces upon the post, substantially as described.

5. In a breech-loading firearm, the combination of a barrel; a forestock; a gas-chamber underlying the barrel and extending through the forestock; a sleeve embracing said parts; a pin extending through the sleeve, said pin being formed with a locking projection; and means for holding said pin against accidental movement.

6. In a breech-loading firearm, the combination of a barrel; a forestock; a gas-chamber underlying the barrel and extending through the forestock; a sleeve 10 embracing said parts; a pin extending through the sleeve and forestock, said pin having a locking lug 14 and a nose 17 upon its outer end; and a cam surface 19 formed on the sleeve in line with nose 17; substantially as described.

7. In a breech-loading firearm, a clip-holding chamber, having a bottom plate, said plate being formed with a rearwardly-extending narrow section spaced away from the end and adjacent side walls of the chamber, whereby a space for the passage of an empty clip is formed, said plate being likewise provided with laterally-extending lugs which pass into openings in the side walls of the chamber and also with a tongue which interlocks with the forward wall of the chamber.

8. In a breech-loading firearm, a clip-holding chamber, having a bottom plate free of contact with the rear wall of the chamber and provided with lugs which pass into corresponding openings formed in the inner side faces of the chamber, and likewise provided with a tongue 154 which interlocks with the forward wall of the chamber; combined with a spring-pressed bolt to engage and hold the tongue.

9. In a breech-loading firearm, the combination of a clip-holding chamber; a bottom plate therefor having a reduced rear end forming a U-shaped opening for the passage of the clip; a presser-plate also provided with a similarly shaped reduced rear end and having laterally-extending lugs 151 which work in guides or ways formed in the side walls of the chamber, and likewise provided with lugs 152 which bear against the inner side walls of said chamber all of said lugs being located forward of the reduced end; and a spring in-

terposed between the bottom plate and presser-plate.

10. In a breech-loading firearm, the combination of a clip-holding chamber; a latch pivoted adjacent to said chamber; an ejector mounted in the frame above the latch; and a single spring acting upon said members.

11. In a breech-loading firearm, the combination of a clip-holding chamber; a latch pivoted adjacent thereto and adapted to hold a clip in position in the chamber; an ejector having a downwardly-projecting stem 61; a pin bearing at its lower end upon the latch; and a spring interposed between the head of said pin and the lower end of stem 61.

12. In combination with a trigger plate; a hammer pivoted thereon; a rod pivoted on said hammer and extending rearwardly therefrom, said rod being provided with a notch; a post extending upwardly from the trigger-plate; a sear pivoted to the post above the rod; a spring serving to throw the sear into engagement with the rod; a dog pivoted on the sear; a trigger acting in conjunction with said dog; and a spring serving to throw the hammer forward.

13. In combination with a pivoted hammer; a rod pivoted on and extending rearwardly therefrom, said rod having a notch formed in its upper side; a post through which the rear end of the rod extends; a spring interposed between said post and a collar on the rod; a sear pivoted to the post; a spring bearing on the post and the sear tending to rock the sear into engagement with the rod; a spring-pressed dog pivoted to the sear; and a trigger working in line with the dog.

14. In combination with a pivoted hammer; a rod pivoted on and extending rearwardly therefrom, said rod having a notch formed in its upper side; a post through which the rod extends; a spring encircling the rod intermediate the post and a collar on the rod; a sear 131 pivoted on the upper end of the post in line with the rod; a spring seated in a recess formed in the upper end of the sear and bearing at its outer extremity upon the post; a dog 133 pivoted on the sear; a spring 136 interposed between the upper end of the dog and the sear; a stop carried by the dog; and a trigger working in line with the lower end of the dog.

15. In a breech-loading firearm, the combination of a frame provided with a bolt-housing having lugs or shoulders formed thereon adjacent to its rear end; a cap provided with an internal groove and a series of lugs, the parts interlocking when the cap is placed in position; and a spring-pressed bolt carried by one of said members and coacting with a seat or recess formed in the opposite member, to hold the cap against rotation and accidental removal.

16. In a breech-loading firearm, the combination of a sliding bolt; an actuating member for said bolt; a gas-operated mechanism provided with a rearward extension; means carried by the actuating member normally engaging said rearward extension; and means for throwing said gas-operated mechanism into or out of action, substantially as described.

17. In a breech-loading firearm, the combination of a bolt; an actuating or handle-block, in operative connection with said bolt; a pivoted latch carried by said block; a gas-operated mechanism provided with a rearwardly-extending member which stands in alinement with the latch; and means for throwing the gas-operated mechanism into or out of action, substantially as described.

18. In a breech-loading firearm, the combination of a bolt; an actuating or handle-block in operative relation therewith; a hook pivotally mounted upon said handle-block; a barrel; a gas-chamber; means for throwing said chamber into or out of communication with the barrel; a piston mounted in the gas-chamber; a runner-bar extending rearwardly from said piston and provided with a hook to engage the hook upon the actuating or handle-block; and means for opening and closing communication between the barrel and the gas-chamber.

19. In a breech-loading firearm, the combination of a breech-bolt having a longitudinal and reciprocatory movement; an actuating or handle-block; connections intermediate said block and bolt for moving the latter forwardly and rotating the same to lock it in position; a hook pivoted upon the block; a barrel; a gas-chamber in communication with said barrel; a piston mounted in the gas-chamber; a runner-bar connected to said pis-

ton and extending rearwardly in line with the actuating or handle-block; and a hook formed on said runner-bar in line with the hook upon the handle-block.

20. In a breech-loading firearm, the combination of a gas-operated automatic mechanism; a bolt; a handle-block therefor; a runner-bar extending from the gas-operated mechanism to the handle-block; and a releasable connection between the runner-bar and handle-block.

21. In a breech-loading firearm, the combination of the frame of the arm provided with rearwardly-extending hooks; a clip-holding chamber; a latch pivoted to the frame adjacent to the chamber, the lower end of the latch extending down between the hooks; a trigger-plate having forwardly-projecting arms engaging and interlocking with the hooks; and a guard for the lower end of the latch carried by the trigger-plate.

22. In a breech-loading firearm, the combination of the frame of the arm provided with rearwardly-extending hooks; a clip-holding chamber; a latch pivoted to the frame adjacent to the chamber, the lower end of the latch extending down between the hooks; a trigger-plate having forwardly-projecting arms engaging and interlocking with the hooks; and a pair of guards extending downwardly from the trigger-plate, said guards being arranged upon opposite sides of the lower end of the latch.

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

MANUEL MONDRAGON.

Witnesses:

VICTOR HERNANDEZ,
SALVADORE DOMINGUEZ.