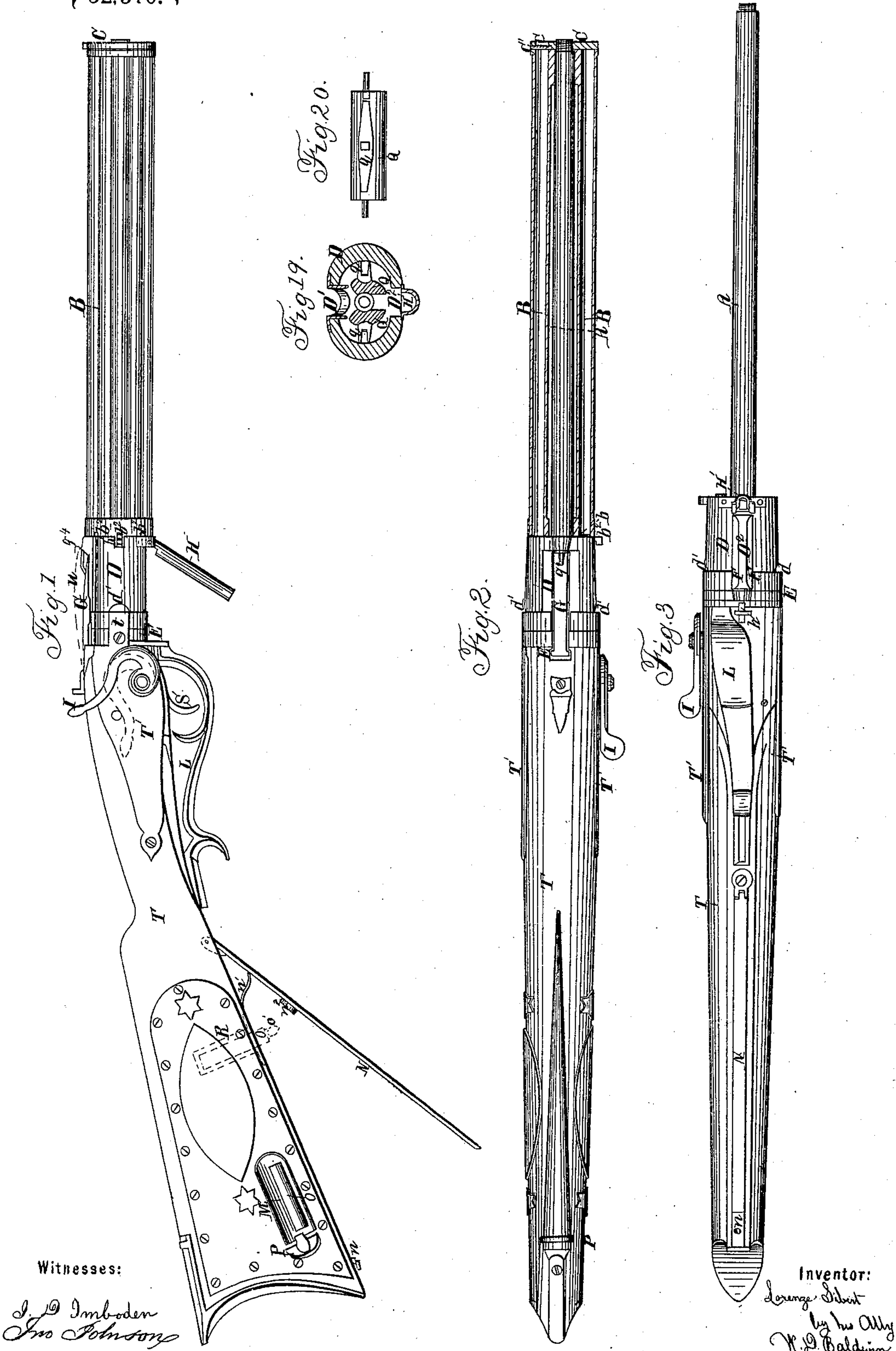


L. SIBERT.

Magazine Fire-Arm.

No. { 1,312, {
 32,316. }

Patented May 14, 1861.

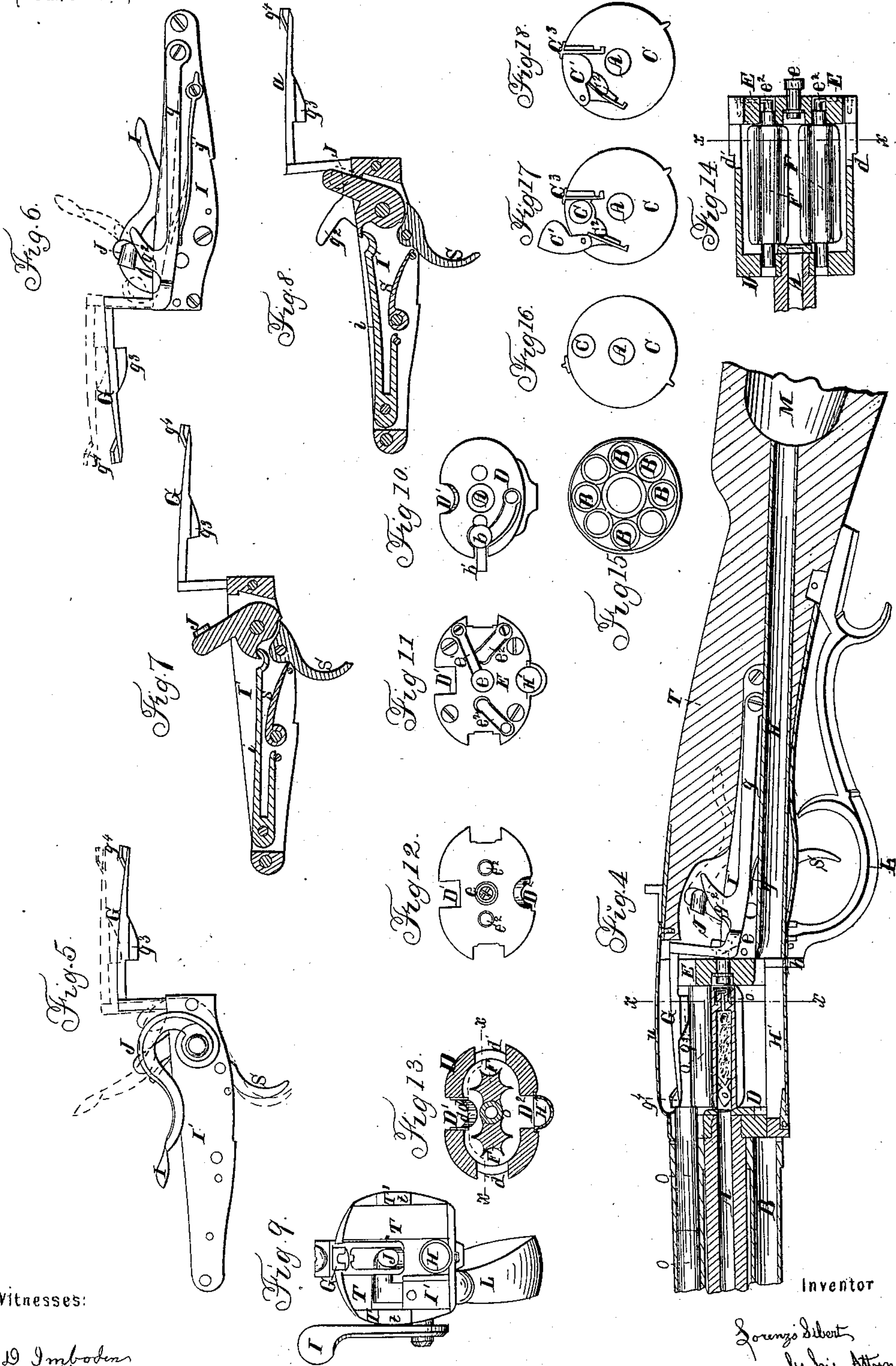


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Witnesses:

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Inventor

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UNITED STATES PATENT OFFICE.

LORENZO SIBERT, OF MOUNT SOLON, VIRGINIA, ASSIGNOR TO HIMSELF
AND JOHN M. McCUE.

IMPROVEMENT IN MAGAZINE FIRE-ARMS.

Specification forming part of Letters Patent No. **32,316**, dated May 14, 1861.

To all whom it may concern:

Be it known that I, LORENZO SIBERT, of Mount Solon, in the county of Augusta and State of Virginia, have invented certain new and useful Improvements in Fire-Arms, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which make part of this specification, and in which—

Figure 1 represents a view, in elevation, of one side of a breech-loading repeating fire-arm embracing my improvements. Fig. 2 represents a plan or top view of the same, with the magazine-tubes in section. Fig. 3 represents a view of the under side of the same, with the magazine-tubes removed. The above-mentioned figures are drawn on a scale of two-thirds the size of the model. Fig. 4 represents a vertical longitudinal section through the center of the same, a portion of the stock and barrel being broken off. This and all the following figures are of the same size as the model. Fig. 5 represents a view of one side of the lock and of the mechanism for placing the cartridges in the proper position for firing, the black lines showing the parts in the attitude they assume when the gun is cocked, and the red lines their attitude when uncocked. Fig. 6 represents a similar view of the other side of the same, with the different attitudes assumed by the several parts indicated in the same manner as in the preceding figure. Fig. 7 represents a vertical longitudinal section through the lock, with its parts in the attitudes assumed by them when the gun is cocked; and Fig. 8 represents a similar section through the same, showing the relative position of its parts after firing. Fig. 9 represents a front view of the stock of the gun at its point of junction with the breech. Fig. 10 represents a view of the breech at its point of junction with the magazine-tubes and barrel, as seen from the front or muzzle of the gun, with both magazine-tubes and barrel removed, showing a device for holding each of the magazine-tubes successively in line with the breech. Fig. 11 represents a view of the outer or rear side of the back plate of the breech at its point of junction with the stock, showing the punch which strikes the cap on the cartridge and the springs which bear upon the ends of the

revolving fluted rollers which hold the cartridge while being fired. Fig. 12 represents a similar view of the inner or front side of the same. Fig. 13 represents a vertical transverse section through the breech at the line *xx* of Fig. 4, showing the fluted rollers with a cartridge held between them, as in the act of firing. Fig. 14 represents a horizontal section through the same at the line *xx* of Fig. 13, the cartridge being removed and the fluted rollers being shown in elevation. Fig. 15 represents a view of the magazine-tubes as seen from the front or muzzle of the gun, with the cap-plate removed. Fig. 16 represents a view of the outer side of the cap-plate which covers the ends of the magazine-tubes. Fig. 17 represents a view of the inner side of the same, showing the mechanism which covers the opening in the cap-plate through which the magazine is filled with cartridges in the attitude it assumes while the tubes are being filled; and Fig. 18 represents a similar view of the same when the opening in the cap-plate is closed. Fig. 19 represents a vertical transverse section through the breech at the line *xx* of Fig. 14, showing a modification of the device for holding the cartridges in position while being fired, and for expelling them when fired; and Fig. 20 represents a view of one of the holding-jaws constituting the modification above mentioned.

My invention relates to that class of single-barreled breech-loading repeating fire-arms in which a series of cartridges are successively automatically brought into line with the bore of the gun, fired, and the exploded cases removed, and has for its object the production of a more simple, rapid, and effective fire-arm than any heretofore known; and to this end my invention consists, first, in arranging a magazine composed of separate tubes to carry complete ball-cartridge concentrically around the barrel of the gun in such manner that the magazine may readily be revolved upon the barrel, and the tubes be caused successively to occupy such a relation to the loading mechanism that the cartridges may regularly and readily be fed one at a time into the discharging mechanism by their own gravity alone, whereby I am enabled to feed the cartridge to the discharge-chamber as rapidly as the

gun can be cocked and fired; secondly, in a conveyer which depresses the cartridge into its place between the fluted rollers, and at the same time prevents the escape of another cartridge from the magazine; thirdly, in dividing the breech by a vertical slot passing entirely through it, to permit the passage of the cartridge through the same with only the detention necessary for its explosion; fourthly, in the combination of two fluted rollers, or their equivalent, arranged to constitute an open receiving-chamber for the loaded cartridge, and in which it is securely held until expelled therefrom by the succeeding cartridge; fifthly, in arranging the mechanism for discharging the gun in such manner that the cartridge is received from the magazine by its own gravity, brought into line with the bore of the gun in the act of cocking, driven forward by the hammer, at the moment of igniting the charge, into the conical part of the breech to pack the joint, and held in this position by the hammer until the gun is cocked, while the conveyer rises at the moment of explosion to admit of the entrance of a fresh cartridge, whereby the ability to fire rapidly is greatly augmented; sixthly, in a combination of parts whereby the loaded cartridge which is being brought into line with the bore of the barrel by the act of cocking is made to expel the cartridge previously exploded; seventhly, in discharging the cases of the exploded cartridges automatically into a secure receptacle in the stock of the gun or into the hand at pleasure; eighthly, in arranging the discharging mechanism in such manner that the cartridge shall be exploded in an open chamber and form a continuation of the barrel of the gun, in contradistinction to those devices in which the cartridge is either inserted into the barrel itself or into a tight breech-chamber, or into both combined; ninthly, in such an arrangement of the parts which receive the loaded cartridge and convey it to the discharge-chamber that the semi-diameter of the cartridge which slides into the breech shall project above the line of the magazine-tube and prevent the escape of more than one cartridge at a time; tenthly, in combining with the lock a conveyer which brings the loaded cartridge into line with the bore of the barrel, so that cocking the lock shall cause the conveyer to act upon the cartridge, while the act of firing shall release the conveyer and cause it to ascend preparatory to the admission of another cartridge; eleventhly, in the combination of the conducting-tube, which receives the spent cartridges and conveys them into the chamber in the stock, with the fluted rollers, so that the exploded cartridges may pass from thence directly into the tube by their gravity alone; twelfthly, in arranging two guides in the breech in such relation to the fluted rollers that the cartridge, when forced below the level of the guides, occupies such a relation to the rollers that it cannot fail to enter between them in a proper manner.

To accomplish these results I take a gun-stock very similar in shape to that of a double-barreled gun, and form a chamber in it, near the butt-end thereof, for the reception of the cases of the exploded cartridges. A tube or channel for the conveyance of the exploded cartridges passes from this chamber to the front end of the stock. The lock, which is inserted into one side of the stock, is very simple in its construction, consisting merely of a hammer, mainspring, trigger, trigger-spring, and cocking-lever. The whole mechanism of the lock, with the exception of the cocking-lever, is incased in two strong plates, which afford a bearing for each end of its journals. The cocking-lever projects on one side of the stock, and is the only part of the lock visible. To the outer side of the inner lock-plate a radius-bar or arm is pivoted in such manner as to move freely up and down in a vertical direction, being also provided with a spring, whose tendency is to keep it always at the highest point in its range of motion. The radius-bar occupies a position very nearly central in the stock, and extends horizontally to about the front of the lock, where it is bent up at a right angle (but still in the same vertical plane) for two or three inches, when it is again bent down into a horizontal position. This vertical portion is divided so as to form a loop, through which the head of the hammer (which projects laterally from the lock) may pass to ignite the charge. The hammer also acts upon an inclined plane or stud secured upon the radius-bar in such manner that when the hammer is drawn back, as in cocking, the radius-bar is depressed, and vice versa.

The horizontal portion of the radius-bar, above the loop, projects some two or three inches in front of the stock, and forms what I term a "conveyer," for conducting the cartridge into the breech, which is secured to the stock just in front of the lock. An opening is made vertically through the breech, in order that the cartridge may pass through it from top to bottom, and into the upper part of this opening the conveyer plays. This opening is also directly above a trough, which serves to convey the empty cartridge-cases into the tube which leads to the chamber in the stock.

Two fluted rollers or jaws are arranged parallel to each other near the middle of the breech-chamber and on each side of the opening above described. These rollers turn freely in their bearings, and may have any desired number of faces or sides, each face being of a semi-cylindrical form, and forming an arc of a circle of the diameter of the cartridge-case. The two adjacent faces of rollers revolve in such relationship to each other that they inclose the cartridge between them, and by their rotation carry it directly into line with the bore of the barrel, where it is in the proper position for firing, the said rotation being caused by the pressure of the conveyer upon the cartridge-case.

The barrel is attached to the front of the

breech-chamber, and is surrounded by a series of tubes arranged concentrically around and parallel to it, in such manner as to admit of their being readily rotated upon the barrel as a center, either automatically or by hand. These tubes form the magazines from which the breech-chamber is supplied with cartridges, and are so arranged that each one in succession may be brought into line with a depression in the upper part of the front of the breech-chamber, through which depression the loaded cartridges may successively slide one by one (by their own gravity) into the breech-chamber, where they lie between the fluted rollers, and are depressed into the proper position for firing by the cocking of the gun, which depresses the conveyer sufficiently to attain this result.

When the cartridge is fired the conveyer rises enough to permit another cartridge to enter the breech-chamber; and as this cartridge is depressed it expels the exploded one from its position, and the latter then falls into a tube or trough, which conveys it to the chamber in the breech prepared for its reception.

The accompanying drawings represent a gun containing a convenient arrangement of parts for carrying out the objects of my invention.

The stock T of this gun is provided near its butt-end with a chamber, M, for the reception of the empty cartridge-cases. From this chamber a tube, H, extends to the front part of the stock, and serves to conduct the empty cartridge-cases from the discharge-chamber to the chamber M, to which access is had by means of a door, P. A loading-lever, M, is hinged underneath the stock, and when closed up fits snugly into a recess therein.

The lock is inserted into one side of the stock, its cocking-lever I projecting outside. The working parts of the lock are inclosed between two strong plates, I', and consist of a mainspring, i, a trigger, S, a trigger-spring, s, and a hammer, J, the head of which strikes a punch, e, passing through a hole in the breech-plate E, said opening being in line with the bore of the gun. The trigger is protected by a guard, L.

Upon the outer side of one of the lock-plates I', but in the center of the stock, an arm or radius-bar, g, is pivoted in such manner as to admit of a free vertical movement. A spring, g¹, secured to the lock-plate underneath this arm, tends to keep it constantly thrown up whenever it is at liberty to rise. An inclined stud, g², projects upward from this arm and passes under the head of the hammer J, which projects laterally from the lock-plate. The radius-bar g is bent up at right angles in front of the lock, but in the same vertical plane, and then bent down again, so as to project horizontally and form what I term a "conveyer," G, which plays up and down through a longitudinal opening in the center of the breech, and serves to depress the loaded cartridge received from the magazine B into line

with the barrel. The vertical part of the conveyer is divided so as to form a loop or opening, through which the head of the hammer plays in its descent to strike the punch which ignites the charge. The details of the lock and conveyer are clearly shown in Fig. 5, 6, 8, and 9 of the drawings.

The breech D is secured to the stock by means of lugs t on the face-plates T', which lugs take into grooves in the breech, and are firmly held by screws. The breech may be formed all in one piece, except the back end, which is composed of a plate, E, secured to the breech in such manner as to admit of its ready removal or replacement. Openings or slots D¹ D², sufficiently large for the passage of the cartridge, are made longitudinally and vertically through the central portion of the breech, both at top and bottom. Each side of the upper slot, D¹, is provided with a vertical guide-plate, d, which serves to insure the descent of the cartridge in a vertical direction. Two fluted rollers, F, in this instance having six sides, each one of which forms a semicircle, are inserted into the breech parallel to each other, and turn in bearings in the ends of the breech-piece. The holes forming these bearings extend entirely through the breech-piece. The rear ends of the rollers project through their holes in the breech-plate E far enough to be acted upon by springs e² countersunk in the back of the plate, the tendency of said springs being constantly to press the rollers forward.

A punch, e, likewise projects through a hole in this plate in line with the bore of the barrel, and serves to explode the cap contained in the end of the cartridge. This punch is retracted after each blow of the hammer by a spring, e¹, countersunk, like the others, in the back of the breech-plate E, one end of which spring takes into a nick in the punch-stock.

A semi-cylindrical trough, H', Fig. 1, is pivoted to the front end of the under side of the breech D in such manner as to permit it to move freely up and down. It may be held up against the breech, when required, by means of a sliding bolt, h, Fig. 3, or other suitable fastening. When thus held up it forms a conducting-trough, to receive the empty cases as they fall from the fluted rollers and convey them to the tube H, leading to the chamber M in the stock.

The opening in the front breech-plate through which the charge escapes is slightly beveled, in order to permit the entrance of the front end of the cartridge at the moment its rear end is struck by the punch e, in order to pack the joint and prevent the escape of gas. Smoke-holes d' are provided in each side of the breech. A cap-plate, u, (see Figs. 1 and 4,) covers the entire breech-piece and protects it securely from wet.

A barrel, A, in this instance a rifled one, is screwed into the center of the front plate of the breech-piece D, and is surrounded by a

series of magazine-tubes, B, in this instance eight in number, which lie parallel to the barrel, and are so arranged as to revolve readily thereon as a center. These tubes are not connected with the barrel, but are retained in place by means of a cap-plate, C, screwed upon the muzzle of the barrel, in order that they may readily be disconnected from the gun when desired. This cap-plate has a hole, c , near its periphery, through which the cartridges may be inserted into the tubes without removing the cap-plate. This hole is covered by a hinged sliding plate, c^1 , countersunk into the under side of the cap-plate, which sliding plate is thrown out by its spring c^2 whenever released from the detent c^3 . The details of this arrangement are clearly shown in Figs. 16, 17, and 18.

A detailed description of the other parts of the gun is deemed unnecessary here, as their construction and operation are well known to all skillful manufacturers of fire-arms, and, besides, they form no part of the subject-matter claimed under this patent.

The cartridges which I design to use in connection with my improved gun are of a peculiar construction. They are composed of a strong cylindrical case, O, of metal, of a length sufficient to pass easily through the openings in the breech, their internal bore being exactly coincident with that of the gun, while externally they are sufficiently large to withstand the force of the explosion of the charge. A nipple, o , is screwed into the rear end of this case, the rear edge of which projects slightly beyond the nipple, in order to prevent accidental explosions by a blow upon the cap when placed upon the nipple.

The ball used by me is also of a peculiar form, being of a cylindro-conoidal shape, having a sharp tapering point in front, and being provided with two angular wings or tails in the rear, which are expanded by the force of the explosion to fill the bore of the gun, and thus to prevent windage.

The ordinary percussion-cap may be used upon this cartridge.

An elevation of my improved cartridge is shown in Fig. 1, a longitudinal section in Fig. 4, and a transverse section in Fig. 13.

The mode of operation of the gun is as follows: The gun is turned upside down, and the detent n , near the butt of the stock, being drawn back, the loading-lever N is thrown out by the spring n^1 . A percussion-cap being placed upon the nipple o of the cartridge-case O, the latter is inserted nipple end downward into a chamber, R, in the stock, which chamber is of a size and depth sufficient to hold the case firmly while being charged. The case O is then filled with powder nearly to its top, and a ball, o' , inserted into the case and pressed down by the loading-lever N, which has a projection, n^2 , on its under side, which projection has a concavity in it corresponding to the shape of the point of the ball, to pre-

vent it from being mashed. The ball is thus forced tightly into the case, and prevents the powder from escaping. The loading mechanism is clearly shown in Fig. 1 of the drawings.

A sufficient number of cartridges having been prepared in this manner, the loading-lever is returned to its position in the stock. The gun is now rested upon the butt, and the detent c^3 upon the cap-plate C being withdrawn, the sliding door c^1 is thrown open by its spring c^2 . The loaded cartridges may then be dropped one at a time (cap end downward) into the magazine-tubes B through the hole c in the cap-plate. When one tube is filled the magazine is rotated sufficiently to bring another tube into line with the hole, and it is filled in the same manner as the first one, this process being repeated until the entire magazine is charged. Any convenient number of tubes may be employed, and, they may be of any desired capacity. In this instance each tube contains six cartridges, and there being eight tubes, the gun can be fired forty-eight times in succession without reloading.

The magazine being charged, it is rotated until one of its tubes is brought into line with the opening D^1 in the breech, when the magazine will be caught and held in that position by a spring-detent, b , countersunk in the front of the breech-piece D, and taking into one of a series of notches, b^2 , on the lower end of the magazine. The lock being uncocked, as shown in Fig. 1, the muzzle of the gun is elevated at an angle sufficient to cause one of the cartridges to slide, by its own gravity, into the opening D^1 in the top of the breech, where it lies upon the grooved rollers F F'. When in this position about half the diameter of the case projects within the plane of the tube from which the cartridges are being discharged, and thus prevents more than one cartridge from entering the breech at a time, as shown in Fig. 4. The gun is now cocked by depressing the cocking-lever I from the position represented by the red lines in Figs. 6 and 7 to that represented in the black lines in the same figures. As the hammer J is drawn back in the act of cocking it acts upon the inclined surface of the stud g^2 upon the radius-bar g and depresses it, and consequently the conveyer G, into the position represented by the black lines in Fig. 6. As the conveyer descends the stud g^3 on its under side forces the cartridge down upon the fluted rollers, which perform a partial rotation upon their axes, and thus inclose and grasp the cartridge between them. A knob g^4 upon the top of the conveyer prevents the escape of any cartridges from the tubes while the conveyer is depressed. The range of motion of the conveyer is so adjusted as to bring the ball exactly into line with the bore of the gun by the time the lock is fully cocked. The piece is then aimed and fired by pulling the trigger S, when the hammer descends and strikes the head of the punch e , the front end of which is small enough

to enter the rear end of the cartridge and explode the cap upon the nipple, thus firing the charge. The force of the blow also urges the cartridge forward, so that its front end (which is made tapering for this purpose) enters a corresponding cavity in the front breech-plate, and thus forms a tight joint at the moment of explosion. As the hammer descends its head slips over the stud g^2 , and the conveyer is instantly thrown up to its original position by its spring g^1 . The muzzle of the gun being again elevated, another cartridge slides in, as before, (see Fig. 4,) and the former process is repeated. As the gun is cocked the punch e is retracted, as soon as released from the hammer, by its spring e^1 , thus leaving the exploded cartridge free from end pressure. As the next loaded cartridge descends it pushes the empty case down and rotates the fluted rollers sufficiently to release it by the time the loaded cartridge is in the proper position for being fired. The empty case drops into the trough H' , from which it slides into the tube H , which conducts it to the chamber M in the stock.

The above process of loading, firing, and expelling the empty case may be continued until the magazine is exhausted.

It is obvious that my improvements might be modified in various ways without departing from the spirit of my invention. For instance, semi-rotating jaws (see Figs. 19 and 20) having springs q behind them to hold them up to their work might be substituted for the fluted rollers $F F'$, and would accomplish a good result; but I prefer the rollers. The magazine might be dispensed with and the cartridges placed in the breech by hand; but in this case it could not be so rapidly fired. The conducting-trough H' might be removed and the empty cases be allowed to fall upon the ground or into the hand; but this would not be so convenient.

My invention might be modified in various other ways; but as such modifications would readily suggest themselves to a skillful mechanic upon seeing my specification and drawings, any further reference to them is deemed unnecessary here.

From the foregoing description it will be manifest that my improved gun possesses many advantages over the breech-loading repeating fire-arms heretofore invented. Its parts are few, simple, strong, and durable, and its method of operation so simple as readily to be acquired by the common soldier. The mechanism is compactly and conveniently arranged, and yet all its parts are readily accessible either for cleansing or for repairs. As after the magazines are filled the only after handling required to load is that of elevating and cocking the gun, it will readily be seen that there can be but little liability to get out of order.

Having thus fully described the construction and operation of my improved gun, what I claim therein as new, and desire to secure by Letters Patent, is—

1. The combination of the series of magazine-tubes B with the barrel A and breech D , substantially in the manner and for the purpose described.

2. The conveyer G , when arranged and operating substantially as herein set forth.

3. An open breech so constructed as to permit the unobstructed passage of a cartridge directly through the same from top to bottom, substantially in the manner described.

4. The combination of the fluted rollers $F F'$, or their equivalent, for the purpose of forming an open chamber to receive and hold the loaded cartridge and discharge it when exploded.

5. The combination of the magazine-tube B , conveyer G , hammer J , and fluted rollers $F F'$, or their equivalent, substantially as and for the purpose set forth.

6. Expelling the empty cartridge-case from the discharge-chamber by means of the succeeding cartridge, substantially in the manner described.

7. Discharging the empty cartridge-cases automatically into a chamber in the stock of the gun, where they may be preserved for future use.

8. Holding the loaded cartridge at the moment of explosion in an open chamber in such manner that the cartridge itself shall form a prolongation or extension of the bore of the gun.

9. So arranging the fluted rollers $F F'$ that the semi-diameter of the loaded cartridge lying thereon shall project into the plane of the tube B , to prevent the escape of more than one cartridge therefrom at a time.

10. The lock composed of the hammer J , mainspring i , trigger S , trigger-spring s , and cocking-lever I , arranged substantially in the manner described, in combination with the conveyer G , for the purpose set forth.

11. The combination of the conducting-tube H and fluted rollers $F F'$, or their equivalent, substantially in the manner and for the purpose described.

12. The guides d , in combination with the breech D and fluted rollers $F F'$, or their equivalent, substantially in the manner described, for the purpose set forth.

In testimony whereof I have hereunto subscribed my name.

LORENZO SIBERT.

Witnesses:

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