

(No Model.)

5 Sheets—Sheet 1.

A. W. SAVAGE.  
MAGAZINE FIREARM.

No. 491,138.

Patented Feb. 7, 1893.

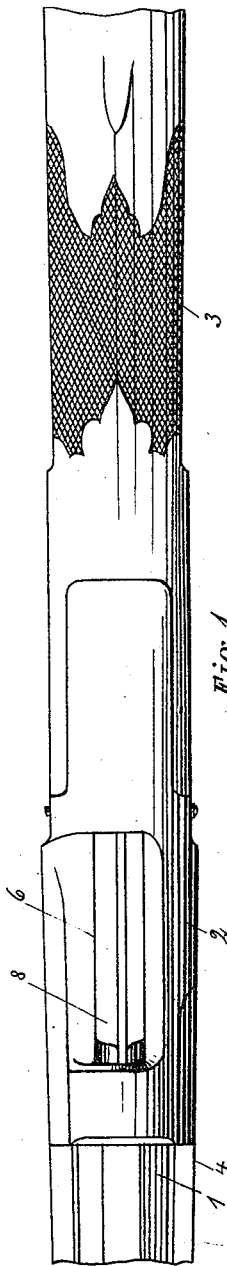


Fig. 1.

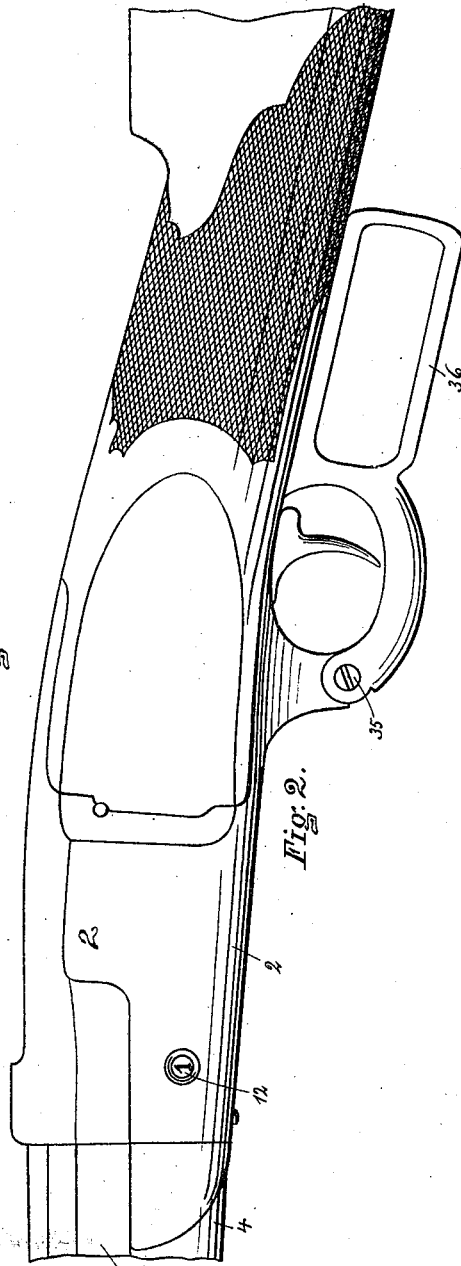


Fig. 2.

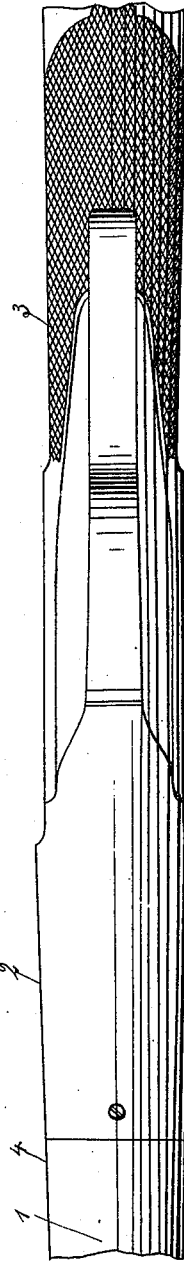


Fig. 3.

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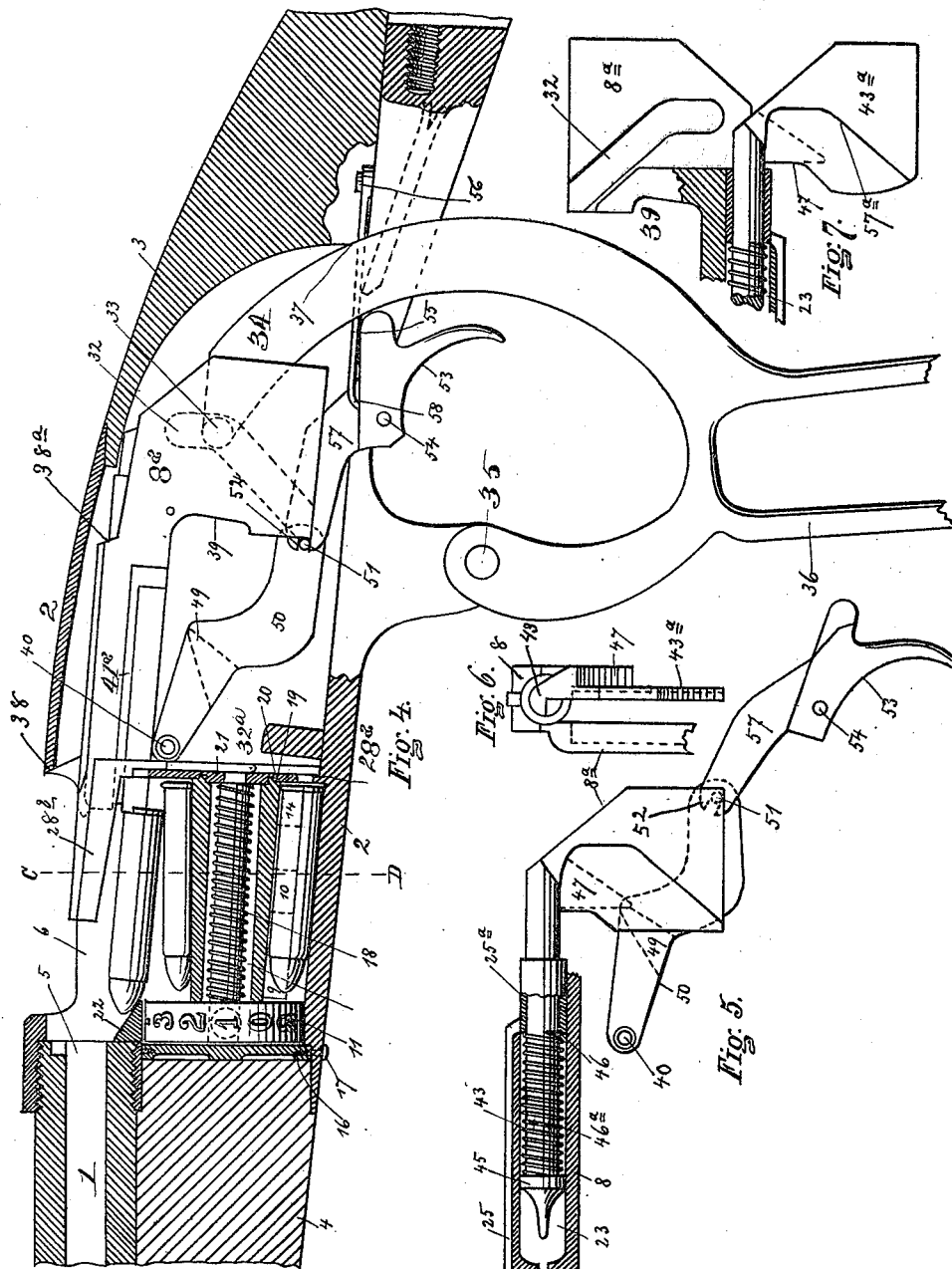
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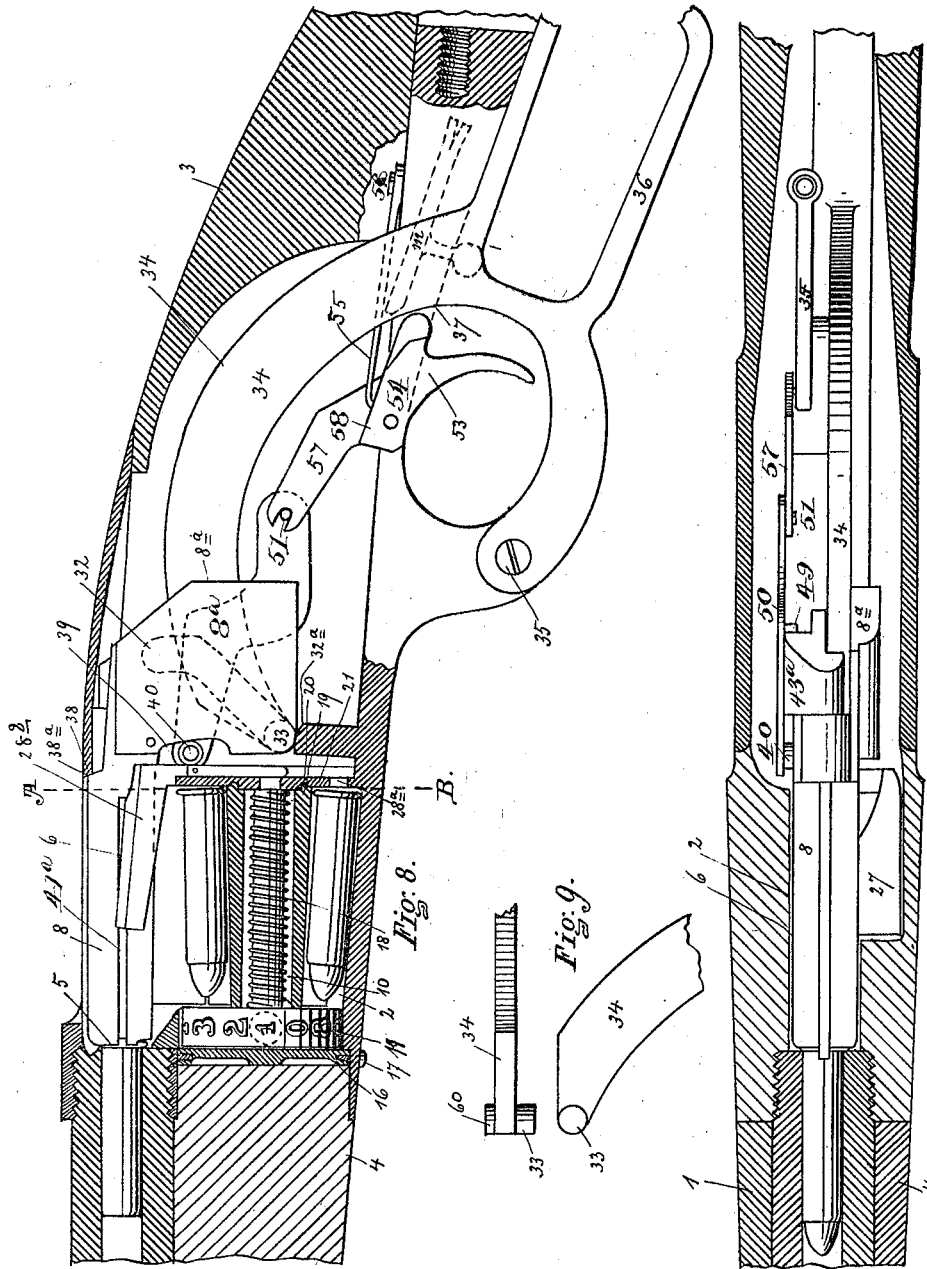
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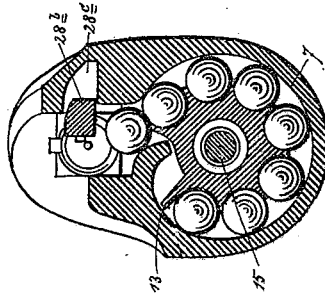


Fig. 11.

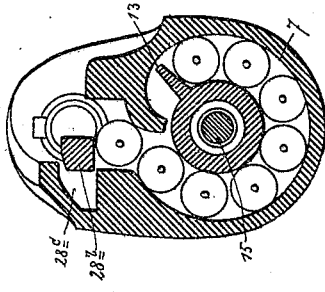


Fig. 12.

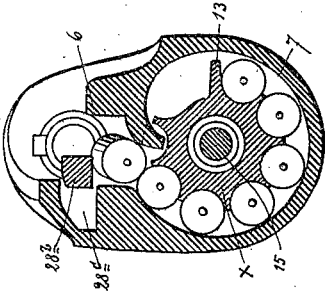


Fig. 13.

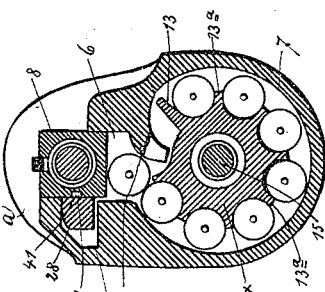


Fig. 14.

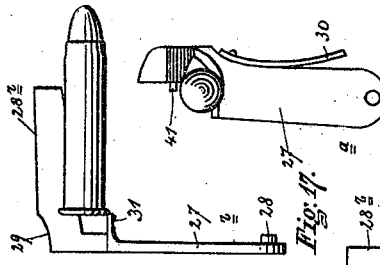


Fig. 15.

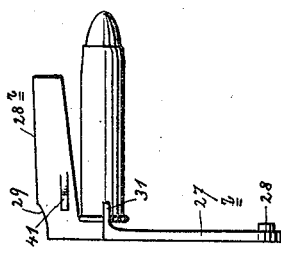


Fig. 16.

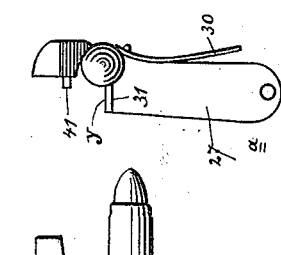


Fig. 17.

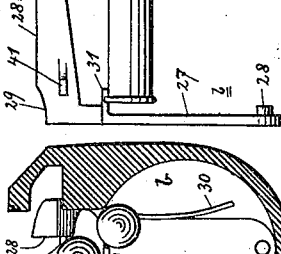


Fig. 18.

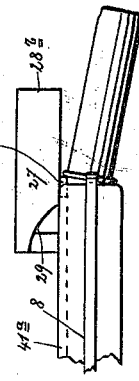


Fig. 19.

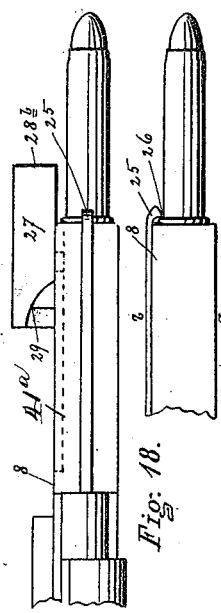


Fig. 20.

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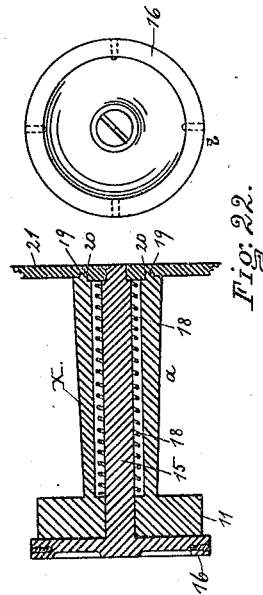
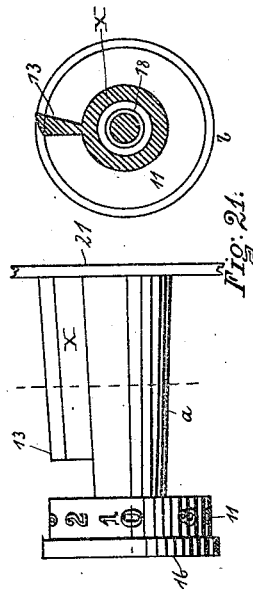
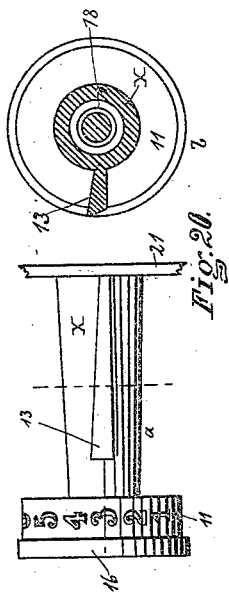
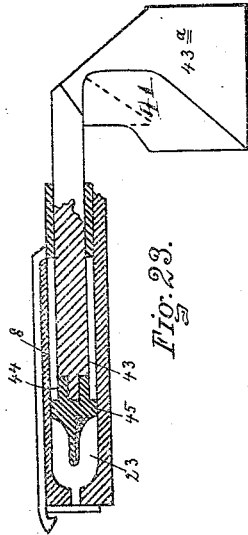
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# UNITED STATES PATENT OFFICE.

ARTHUR W. SAVAGE, OF UTICA, NEW YORK, ASSIGNOR TO J. MORRIS CHILDS,  
RICHARD S. REYNOLDS, AND EDWIN H. RISLEY, OF SAME PLACE.

## MAGAZINE-FIREARM.

SPECIFICATION forming part of Letters Patent No. 491,138, dated February 7, 1893.

Application filed February 23, 1892. Serial No. 422,402. (No model.)

*To all whom it may concern:*

Be it known that I, ARTHUR W. SAVAGE, of Utica, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Magazine-Firearms; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form part of this specification.

My invention relates to an improvement in magazine firearms.

Some of the more salient points of my improved firearm consist in providing an arm adapted for sporting and military purposes and adapted to use modern ammunition, and which combine the advantages of a hammerless gun with a magazine capable of being used as a single loader without reference to whether the magazine is full or empty, and providing a magazine which brings the cartridges therein into such relative position that they are not liable to explode one another, besides providing many other features of utility and novelty which will be apparent to those skilled in the art, as they follow the description.

In the drawings which accompany and form part of this specification and in which similar letters and numerals of reference refer to corresponding parts in the several figures, Figure 1 shows a top view of the frame portion of my gun including a small portion of the barrel and a portion of the stock. Fig. 2 shows the same parts shown in Fig. 1 from the side. Fig. 3 shows the same parts shown in Figs. 1 and 2 from the bottom. Fig. 4 shows a longitudinal section taken on a central line of the frame, stock and barrel, and a portion of the working parts, and exhibiting the working parts as they would appear with the left hand side of the gun removed, the working parts being in the position which they assume when the breech is open and the magazine is partially filled with cartridges and a cartridge is about to be introduced into the barrel. Fig. 5 shows a partial longitudinal section of the breech-bolt, exposing to

view the firing-pin and firing-pin spring and the L-shaped rear end of the firing-pin, in connection with the sear and trigger in their proper relative positions. It also shows the extractor. Fig. 6 shows a rear end view of the breech-bolt and firing pin. Fig. 7 shows, in detail, a portion of the breech-bolt in section and a portion in full lines, in connection with the rear L-shaped end of the firing pin, a portion of the firing-pin spring, and a section of the sleeve on which the extractor is mounted, the breech-block being turned on the firing-pin as a pivot to open the parts and better exhibit the construction. Fig. 8 is a companion view of Fig. 4, showing the same parts in the position which they assume immediately after the gun has been fired. Fig. 9 shows, in side and end elevation, the end of the arm of the operating lever. Fig. 10 shows a horizontal section of the frame, exposing to view from the top, the working parts of the gun. Fig. 11 shows a section taken on line A—B of Fig. 8 with the breech-block in firing position and the magazine substantially filled with cartridges, the cartridges being shown in full as from the base or rear end. Fig. 12 shows a section taken on line C—D of Fig. 4 the breech being open and the cartridge about to be introduced into the barrel. The cartridges are shown in full lines. Fig. 13 shows a section taken similar to Fig. 12, with modified form of magazine core. Fig. 14 shows the same section as Fig. 12, looking from the barrel side of the section in which the end of the breech-block is seen and the bullet end of the cartridge, which is shown in full lines. Fig. 15 shows, in the portion of the figure marked *a* a section of the frame in section, in connection with the cartridge retainer and the cartridge held in the magazine by the retainer and the cartridge introduced into the breech-opening and also held by the retainer against the frame. The right hand or *b* portion of the figure shows the magazine cartridge and the retainer, as seen from the left side of the other portion of the figure. Fig. 16 shows, at *a*, a front end view of the cartridge retainer, in connection with the magazine cartridge held by the retainer and the spring for operating the retainer, and in the right hand or *b* por-

tion of the figure are also shown the same cartridge and retainer in the same relative position as seen from the left of the other portion of Fig. 16. Fig. 17 shows at *a*, an end view of the magazine, cartridge and cartridge retainer in the next position from that shown in Fig. 16, after the cartridge has been advanced a little by the advancing breech-block and the *b* portion of Fig. 17 shows in side elevation, as seen from the left of Fig. 17<sup>a</sup>, the same cartridge and retainer in the same relative position. In this position the ball end of the cartridge is about to enter the barrel. This figure may also show the position of a cartridge introduced into the breech-opening and not having come from the magazine. Fig. 18 shows at *b*, a top view of the breech-bolt and cartridge extractor mounted thereon, in connection with a cartridge which has been advanced by the breech-bolt partially into the barrel and also in connection with a top view of the cartridge retainer. Fig. 18 also shows at *a*, a side view of a portion of the breech-block, cartridge and cartridge extractor, shown in the other portion of the figure. Fig. 19 shows a top view of a portion of the breech-bolt and cartridge extractor in connection with a cartridge shell just withdrawn from the barrel and engaged with the cartridge ejector, provided on the cartridge retainer, a top view of which is shown. Fig. 20 shows in side elevation at *a* and in cross-section at *b* the cartridge advancing core shown in Fig. 13 in connection with the cartridge advancing leaf, figured or numbered projections or flanges, and a portion of the frame on which the parts are mounted. Fig. 21 shows at *a* and *b* respectively, the same parts shown in Fig. 20 in a changed position. Fig. 22 shows at *a* and *b* respectively a longitudinal vertical section of the device shown in Fig. 20, and an end view of the same. Fig. 23 shows a partial longitudinal section of the firing-pin and a partial longitudinal section of the breech-bolt in connection with the rear portion of the firing pin, the cartridge extractor and section of the sleeve on which the extractor is mounted.

Referring more particularly to the reference numerals and letters marked on the drawings in a more specific description of the device, 1 indicates the barrel which is screw-threaded into the frame 2 in the usual manner and which frame is provided with a stock 3, also in the usual manner. Under the barrel is provided a tip-stock 4.

In the frame at the end 5 of the barrel is provided an opening 6 into the magazine, in which slides breech-bolt 8 which, when in firing position is adapted to close the opening 6 in the frame. Beneath the opening 6 is provided the magazine within the frame which consists essentially of a cylindrical opening in the frame provided with a wall 7 curved in cross-section, the wall constituting a portion of the frame.

Within the magazine is provided a par-

tially revolving cartridge advancing core *x*, which is provided with a following flange or cartridge advancer 13 preferably with an inclined face inclining upward toward the muzzle of the gun (Fig. 20, *a*) adapted to engage the cartridges within the magazine and force them up to the point where they are acted upon by the bolt to introduce them into the barrel. The cartridge advancing core may also be provided with a series of projections as 13<sup>a</sup> which will separate the several cartridges contained within the magazine. The cartridge advancing core is mounted upon shaft or spindle 15 (see Fig. 22) which is provided with enlarged plate head 16 adapted to be received in the end of the magazine chamber and held in position by a screw 17 introduced through the frame and into one of a series of holes provided in the periphery of the head 16, whereby the tension is obtained on the spring as hereinafter pointed out. The opposite end of shaft 15 is supported in an opening in diaphragm plate 21 of the frame and to this end of the shaft or spindle 15 is secured one end of the spring 18. The opposite end of the spring is secured to the cartridge advancing core.

The cartridge advancing core is provided at its rear end with a circular flange 19 engaging within a circular recess 20 in the diaphragm plate 21 of the frame. The opposite end of the cartridge advancing core is provided with a circular figured disk 11, which is provided with numbers or characters on its periphery which are successively presented at opening 12 in the frame. (See Fig. 2.) The numbers or characters are so arranged on the disk 11 that it will indicate, by means of the figure or character presented at the opening 12 the number of cartridges contained in the magazine. The tension of the spring 18 which advances the cartridges out of the curved, elongated magazine, is adjusted by removing tip-stock 4 and the screw 17 and inserting a screw driver in the slotted opening in the head shown in Fig. 22 and then turning this screw-driver and winding the spring to the desired tension, after which the screw 17 is inserted in any one of the series of openings provided in the head 16, some openings being shown in dotted lines in Fig. 22. Keys instead of screws may be employed.

The cartridges are placed into the magazine through the opening 6 and as they are placed into the magazine sidewise one after the other, the cartridge advancing core with leaf 13 and the cartridge advancing core and flange are backed up against the tension of the spring until the leaf engages projecting flange 42 (Fig. 11), extending into the curved chamber. The cartridges are retained in the magazine by cartridge retainer 27 which consists of a vertical swinging arm having a pivotal projection 28 at its lower end adapted to engage in an opening 28<sup>a</sup> provided in the diaphragm plate 21 or the frame. At the upper end the retainer is provided with a sub-

stantially horizontal projecting arm 28<sup>b</sup>, which projecting arm lies substantially parallel with the frame or wall of the opening 6 and is adapted either to partially close the opening or to be retracted into a recess 28<sup>c</sup> provided in the frame or wall of the magazine for its reception. The cartridge retainer is also provided with a cartridge holder or detent 31 which consists of a flange projecting in the line of the barrel and being lower than horizontal portions of the arm for engaging the rim of the cartridge. This flange is also provided with a slight depression in its under surface and right hand edge as shown in Fig. 15 adapted to receive the rim of a cartridge. It will also be noticed that the horizontal projecting holder 31 has an upper shoulder or shelf *y*. The breech-bolt slides or reciprocates in its ways directly over the shoulder *y* of the retainer and is adapted to act against the cam face 29 of the cartridge retainer (shown in Fig. 18<sup>b</sup>) as it advances from its most retracted position, which causes the cartridge retainer arm 28<sup>b</sup> to be moved aside into the recess 28<sup>c</sup> out of the line of movement of the breech-block, the breech-block moving in line with the barrel. The cartridge retainer is projected into its forward position in the line of travel of the breech-block when said block is retracted by spring 30 (Fig. 16) acting against the wall of the magazine or frame.

On the cartridge retainer arm 28<sup>b</sup> I provide the ejector stop 41, which consists of a projection from the inner surface of the retainer and adapted to engage the rim of the cartridge shell as the cartridge is withdrawn from the barrel into the breech-opening. The shell is retracted by the extractor 25 mounted on the breech-block which extractor is provided with a hook 26 adapted to engage the flange of the cartridge.

To permit the breech-block to play freely to and fro through the breech-opening and also to allow the ejector stop 41 to be in position to engage the rear of the cartridge, the breech-block is provided with a longitudinal groove 41<sup>a</sup> along its side, the ejector stop traversing the groove as the breech-block is advanced or retracted. The breech-block is provided with a cup-shaped end adapted to engage the end of the cartridge the rim forming the cup being cut out in several places to permit the introduction of the cartridge extractor and the use of other parts hereinafter pointed out. It is also provided with a central perforation in the end through which the firing pin point is adapted to play, to explode the cartridge. The remaining portion of the body of the breech-block is provided with a chamber 23 to receive the firing-pin 43 and firing-pin spring 46<sup>a</sup>. The rear end of the chamber 23 is closed by sleeve 25<sup>a</sup> surrounding the firing-pin and on which is secured the extractor 25. The sleeve is held rigidly in the breech-block by pin or key not shown. The firing-pin is provided with a removable point 45 which is screwed onto the point end of the

pin. The firing-pin spring is confined between the shoulder of the removable point and shoulder 46 of the sleeve 25<sup>a</sup> (see Figs. 5 and 23). The inner rear portion of the breech-block consists of an L-shaped projection 8<sup>a</sup> which projects somewhat to the side of the rear end of the breech-block to utilize the room within the frame.

In the L-shaped portion 8<sup>a</sup> of the breech-block, I provide an angular cam groove 32 adapted to receive projection 33 on the end of curved lever arm 34 of operating lever 36 which lever 36 is pivoted at 35 to a projection 80 on the under side of the frame. The free end swings below the frame and forms the trigger guard. The firing-pin 43 is also provided with an L-shaped projection 43<sup>a</sup> at its rear end, which projection is provided with a cam face 57<sup>a</sup> adapted to be engaged by projection 60 on the end of operating lever arm 34 (see Fig. 9). The cam face 57<sup>a</sup> is preferably arranged to be about a sixteenth of an inch in advance of the rear face of groove 32 of the breech-block, so that as the operating lever is moved to draw back the breech-block the firing pin will be acted on first and held back while the breech-block and firing-pin are being drawn back or projected forward by the operation of the lever arm 34, thus withdrawing the firing-pin from the face of the breech-block so as not to allow it to become engaged with and explode the cartridge.

On the outside of the L-shaped projection 43<sup>a</sup> of the firing-pin is provided a catch projection 47 adapted to be engaged by catch 49 on the seer 50 and thus cocking the gun. The seer is pivoted at 40 to a pin secured in the frame: on the opposite end of the seer 50 I provide a pin 51 which is engaged by the forked end 52 of the trigger arm 57; trigger 53 is pivoted at 54 on a pin secured in the frame. The trigger is actuated by a spring 55 engaging the trigger at 58 and secured at 56 to the frame.

In the frame is provided a support 32<sup>a</sup> upon which rests the end of lever arm 34 when the working parts of the gun are in firing position, forming a locking support to the rear of the breech-block when the gun is used. The curved lever arm 34 is concentric with the pivotal point 35 of the operating lever and is substantially of uniform size in the portion of its length that enters the chamber of the frame containing the working parts of the gun through an opening 37 fitted to receive it therein and being of uniform size keeps the opening also closed, thus excluding dirt and foreign matter from the chamber. By the use of the curved arm 34, clearance is had between the operating end of the lever and the pivotal point, which space is utilized for working parts of the gun.

The "L" shaped wing or arm of the breech-block is provided with a cam face 39 adapted to engage against a pin or fixed portion 40 of the gun, whereby a powerful leverage is obtained, in starting the cartridge in withdraw-



ing them from the barrel; this is accomplished by the rising and falling of the rear of the breech-block when operated by the mechanism before referred to. There is also provided  
 5 a safety catch shown in dotted lines at *m* which slides in a suitable recess in the frame and is adapted to be projected to engage the rear end of the trigger so that the trigger  
 10 can not be operated to fire the gun while the catch is in its forward position and the gun cocked.

Projecting from the inner curved wall of the magazine at the side of the breech-opening, I provide a projection 42 the upper face  
 15 of which extends down and in close proximity to the cartridge advancing core of the magazine chamber and is adapted to raise the cartridges into the breech-opening as they are forced out of the magazine by the cartridge  
 20 advancing core and the lower face forms a stop against which the leaf strikes when the magazine is being filled. In case the cartridge advancing core is provided with  
 25 projections as 13<sup>a</sup>, these projections are made in sections with spaces between, the sections being shown at 9, 10 and 14 in Fig. 4, and the projection or lip 42 in that case is provided  
 30 with notches or cutaway portions which permit the projections 13<sup>a</sup> to pass between them. In the case where the projections 13<sup>a</sup> are not  
 used the lip 42 may be a continuous lip.

On the breech-block is provided a shoulder 38<sup>a</sup>, which is preferably slightly inclined and is adapted to engage against fixed shoulder  
 35 38 in the frame when the gun is breeched up.

At the rear end of the barrel and in the magazine opening, is provided an inclined face 22 up which the forward ends of the cartridges slide, by which they are raised on their  
 40 passage from the magazine into the barrel.

The breeching up and locking mechanism are arranged to raise and lower the rear of the breech-block as already described, and form  
 45 powerful breeching up qualities in my gun.

The operation of the device is substantially as follows: Supposing the breech to be fully opened by the withdrawal of the breech block or bolt to its extreme rear or open position: The cartridges are introduced into the magazine chamber through the opening 6 one by  
 50 one, by hand, or by using a filler, and as they are so introduced they pass around and are held by the curved wall 7 of the frame and against the tension of spring 18, with their ends in substantially the same vertical plane. When the magazine is full the last cartridge will be held in the magazine by arm 28 of the  
 55 retainer engaging the last cartridge introduced, or better, by the holding projection 31 engaging the rim of the cartridge in the magazine. With the magazine thus filled with cartridges the gun can be used as a single loader by introducing the cartridges into the breech-opening and between the arm 28 of the retainer  
 60 and the fixed side of the opening. When a cartridge is thus introduced, it bears against the arm 28<sup>b</sup> of the retainer, and thus swings

the retainer to one side, the arm 28<sup>b</sup> entering partially into the recess in the frame. This  
 70 swinging of the upper end of the retainer causes the arm 31 to press against the upper cartridge in the magazine, and force the entire column of cartridges back a little way, against the resistance of the spring follower, so that the upper cartridge in the magazine  
 75 is removed from the path of travel of the breech block in closing. As the breech-bolt is advanced by operating the lever 36 and its connecting parts, the front end of the breech-bolt strikes the cartridge so introduced and  
 80 forces it into the barrel of the gun the front end of the cartridge riding up the incline 22. As the breech-block is advanced, the projection 47 of the firing-pin is caught and held by the projection 49 on the seer, and its  
 85 forward movement is arrested, and as the breech-block completes its closing movement, the firing-pin is held back into the position shown in Fig. 5, in firing position. As the breech-block completes or nearly com-  
 90 pletes its movement in introducing the cartridge, the rear end is raised, while advancing by the action of the projection 33 on curved arm 34 of the lever, in the slot 32 of the arm of the bolt. This raising of the rear  
 95 end of the bolt brings the shoulder 38<sup>a</sup> of the bolt in front of the shoulder or abutment 38 of the frame, locking the bolt securely against rearward movement. At the same time the lower front corner of the L shaped arm of the  
 100 bolt is carried over the abutment 32<sup>a</sup> in the frame, locking the bolt against downward movement, in which case the gun is completely breeched and ready for firing, which is simply done by pulling the trigger 53 which  
 105 releases the catch on the seer from the catch of the firing pin, which is advanced by the spring 46<sup>a</sup> and explodes the cartridge. As the breech-block is placed in its final position before firing, the swinging end of the arm 34 is  
 110 brought to rest on support 32<sup>a</sup> of the frame and the lower end of the cam groove in the breech-block resting upon projection 33 of the arm makes, in connection with the shoulders 38 and 38<sup>a</sup>, a rigid backing for the breech-  
 115 bolt. The shoulder 38<sup>a</sup> of the breech-bolt is brought into engagement with shoulder 38 of the frame by the action of the cam slot 32 and the lever 34. After the discharge of the gun the cartridge shell is withdrawn from the barrel  
 120 by the extractor 25 as the bolt is withdrawn and as the bolt reaches the rear end of the breech-opening or nearly so, the cartridge is engaged on the side by ejector 41, and as the extractor further retreats a short lever-  
 125 erage is obtained on the rear end of the cartridge between the extractor hook and the ejector which throws the cartridge out of the breech opening. As the lever 36 is operated to open the breech of the gun, the first operation of the breech-bolt is a downward one at  
 130 its rear end, which movement causes the cam face 39 thereon to engage against fixed pin 40 in the frame by means of which a powerful

leverage is obtained to start the cartridge. The downward movement of the rear end of the breech-bolt also disengages shoulders 38 and 39.

As the lever 36 is operated to draw the breech-bolt its first operation on the firing pin is to draw it slightly back with reference to the breech-bolt which is effected by the projection 60 thereof becoming engaged on cam face 57 of the firing pin which cam face is slightly in advance of the rear cam face of groove 32, as before explained. When the firing-pin has been drawn back so that the cam groove of the breech-bolt and the cam face of the firing pin co-incide the pin travels with the breech-bolt, until the breech-bolt is again advanced, when it is caught by the projection on the seer as before stated, and the gun is left locked. In case no cartridge is introduced into the breech-opening before the breech-bolt is advanced the first cartridge in the magazine next to the breech-opening will be in the position shown in Fig. 16, in which case the edge of the head of the cartridge projects slightly into the path of the breech-bolt in closing, and is caught by the end of the advancing breech-bolt as it passes over shoulder *y* of the retainer, the cartridge is advanced to the position shown in Fig. 17 when it becomes disengaged from the holder projection 31 and is raised by the next succeeding cartridge in the magazine or the cartridge advancer, into a position in front of the breech-bolt, and as the breech-bolt advances the cartridge is forced up the incline 22 and into the barrel of the gun. If it is desired to close the breech leaving cartridges in the magazine, without loading the gun, it is only necessary to press the retainer slightly to one side by hand, when the retainer presses back all the cartridges in the magazine slightly, and the bolt will pass by the upper cartridge without forcing it from the magazine.

What I claim as new and desire to secure by Letters Patent is;—

1. In a gun, the frame, the longitudinally moving bolt, the abutment in the frame in front of which the bolt swings in a sectoral plane in locking and unlocking, and a cam surface on the bolt acting against a fixed abutment in the frame to retire the bolt slightly during its sectoral movement in unlocking, all combined substantially as described.

2. The frame, the bolt having a longitudinal movement therein and swinging to locked position from a center of movement at its front, a cam surface on said bolt, and an abutment in the frame against which the cam surface acts, and a lever connected to the frame and operating on the bolt to swing and retire the same, in combination substantially as described.

3. The bolt having a side wing at its rear end, said wing having an inclined surface, the frame having an abutment against which the rear of the bolt swings in an arc struck from the front of the bolt in locking, and a second abutment against which the inclined

surface on the wing of the bolt bears in unlocking, and means for swinging and reciprocating the bolt, all combined substantially as described.

4. The reciprocating bolt, the frame having an abutment against which the rear of the bolt swings in locking, and a second abutment against which the side of the bolt rests at the completion of its swinging movement, and means for operating said bolt, all in combination.

5. The reciprocating bolt, having a bottom extension at its rear, the frame having an abutment at its top against which the rear of the bolt swings in locking and an abutment below the bolt against which the bottom of the bolt extension rests when locked, and the operating lever hung in the frame and connected to the extension of the bolt, all in combination substantially as described.

6. The reciprocating bolt having a rear extension and a cam face in said extension, the firing pin carried by said bolt and also having a rear extension with a cam face of a different inclination, and the operating lever having projections engaging the cams on the firing pin and bolt, to retire the firing pin slightly in advance of the bolt movement, all combined substantially as described.

7. The frame and the reciprocating brush block therein, the lever pivoted to the frame and having a curved arm thereon projecting upward and forward concentric with the lever pivot, the said breech block having a cam surface operatively engaged by said curved arm of the lever, and an abutment in the frame against which said arm rests when the lever is in closed position, all combined substantially as described.

8. The frame and reciprocating bolt therein, the lever pivoted to the frame and having an arm with operative engagement with the reciprocating bolt, and a solid abutment against which the forward portion of the lever arm comes to rest when the bolt is in closed position, in combination substantially as described.

9. The frame and reciprocating bolt therein, the lever pivoted to the frame and having a curved arm concentric with its pivot and extending forward into operative engagement with the bolt, and an abutment in the frame against which the front end of the curved arm bears when the bolt is closed, all combined substantially as described.

10. In a gun, the magazine having curved walls, the cartridge advancing core having a follower or wing connected thereto, a spiral spring connected to a shaft within the core and to the core, said shaft having a head with a series of holes into either of which a retaining device may extend and thus regulate the initial tension of the spring.

11. The magazine having curved wall, the central core and a spring bearing on the same to rotate it, and a rigid wing on said core and inclined transversely to the axis of the gun

in all positions of said wing, substantially as described.

12. In a gun, the magazine having curved walls substantially as described, the cartridge advancing core smaller in diameter toward the front than toward the rear, and means for rotating said core, all combined substantially as described.

13. In a gun, the magazine having curved walls, the cartridge advancing core, and the cartridge retainer pivoted in the frame below the center thereof and having a detent for the cartridges, in combination, substantially as described.

14. The magazine having curved wall and a follower, the retainer pivoted below the bolt and having a holder or detent extending over the upper cartridge, and an arm on said retainer above said detent, and in the path of movement of the breech piece, all in combination substantially as described.

15. The magazine having curved wall and spring-actuated follower, the retainer pivoted in the frame and having a detent extending over the rear end only of the cartridge, and a cam face on the retainer in position to be engaged by the breech piece in closing, all substantially as described.

16. In a gun, the magazine with circular wall, the retainer pivoted low in the frame and having a detent extending over the rear of the cartridges below the bolt, and an arm projecting alongside of and nearly parallel with the bolt, the parts in combination substantially as described.

17. The magazine having a cartridge advancer, the movable retainer near the mouth thereof having a detent for the cartridges in the magazine, and an arm in position to be pressed back by a cartridge in the receiver in loading position, whereby the cartridges in the magazine are slightly retired, all combined substantially as described.

18. The combination with the magazine having a follower therein, of the movable retainer having a detent projecting over the rear end of the cartridges, an arm extending about parallel with the bolt, and a spring bearing said retainer toward the bolt, all substantially as described.

19. The frame having the magazine with curved walls and the projecting floor overhanging one side thereof and having recesses therein, and the cartridge advancing core having projections to extend between the cartridges and to move through said recesses, all combined substantially as described.

20. The combination with the magazine and reciprocating bolt, of the movable retainer at the mouth of the magazine and the shell ejector thereon, substantially as described.

In witness whereof I have affixed my signature in presence of two witnesses.

ARTHUR W. SAVAGE.

Witnesses:

HERMAN BOOTH,  
RICH. A. GEORGE.