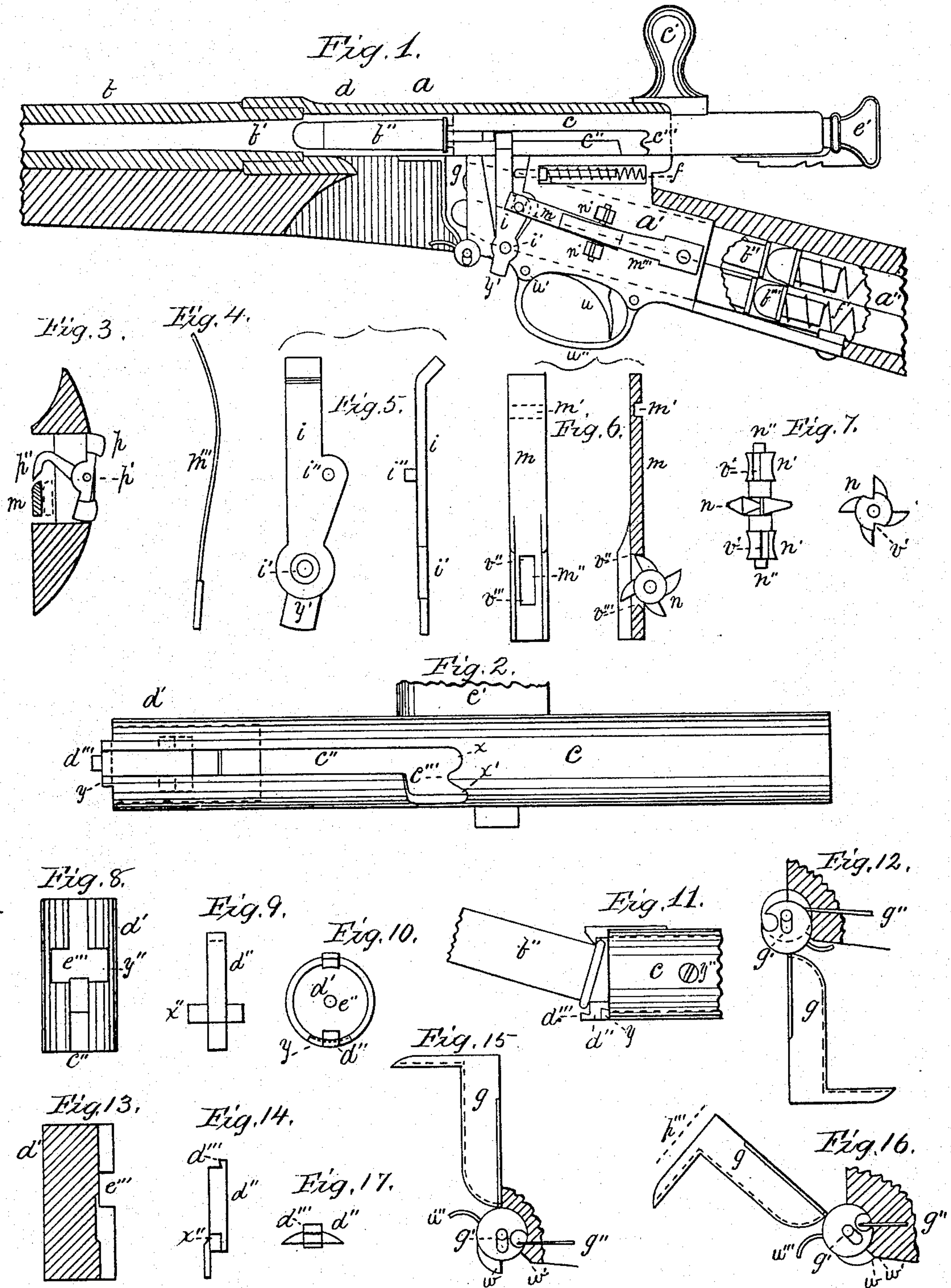


W. H. ELLIOT.
Magazine Fire Arm.

No. 229,812.

Patented July 13, 1880.



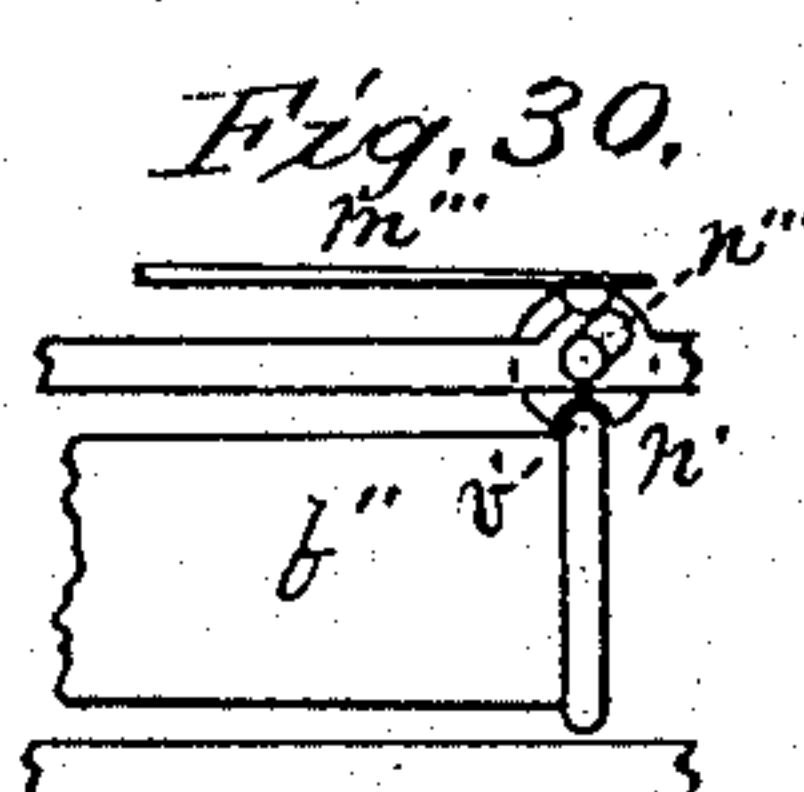
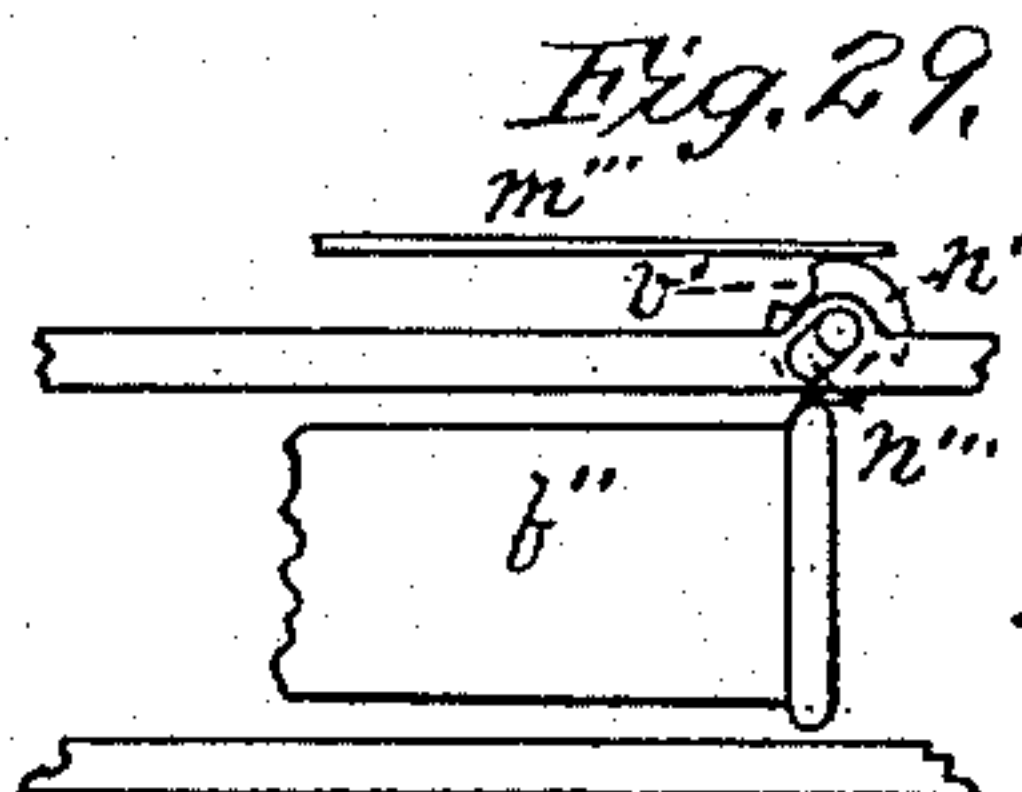
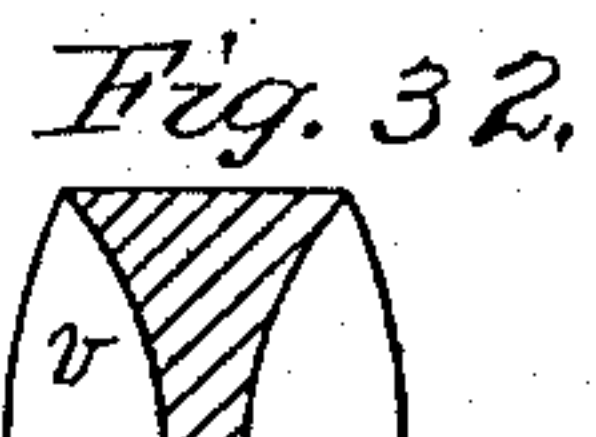
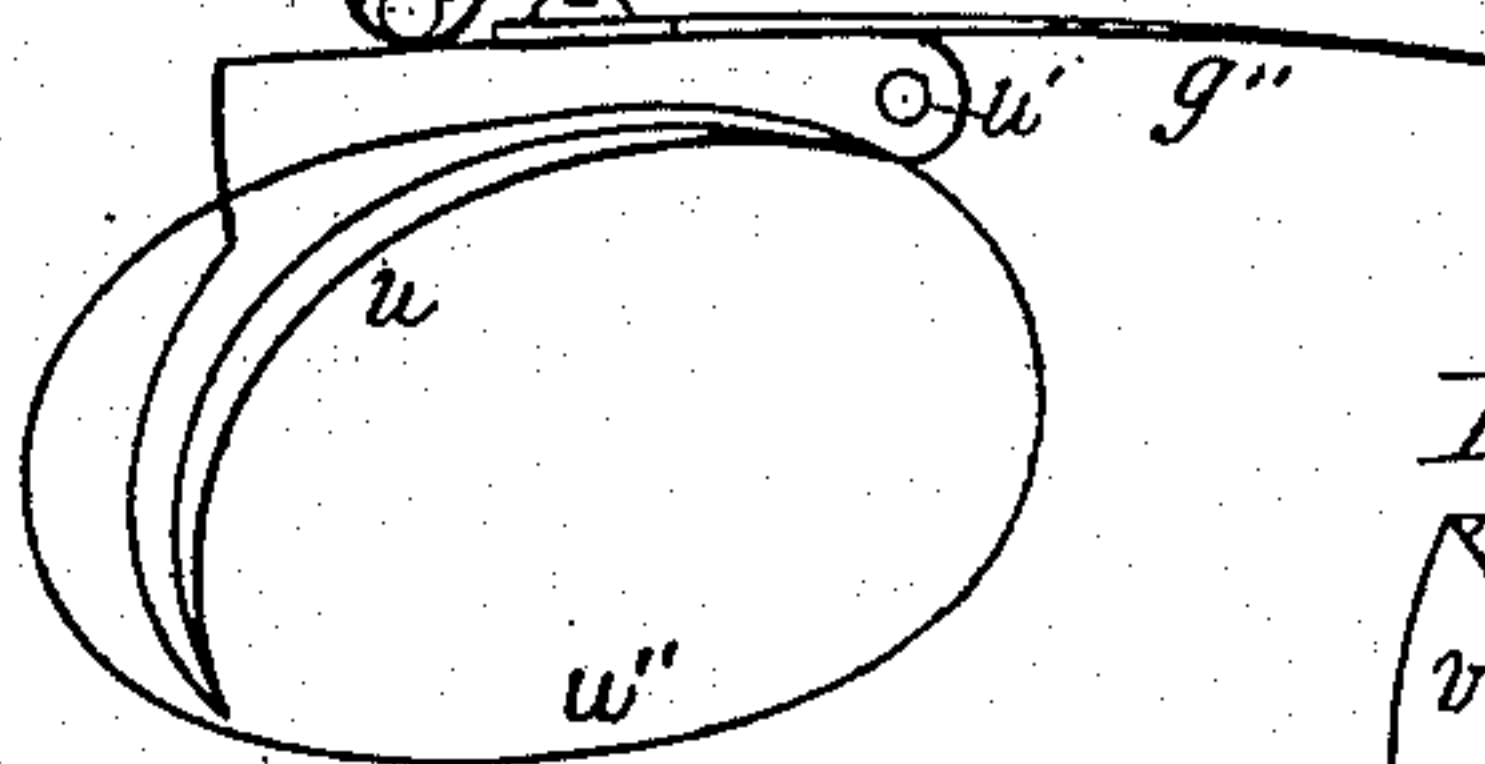
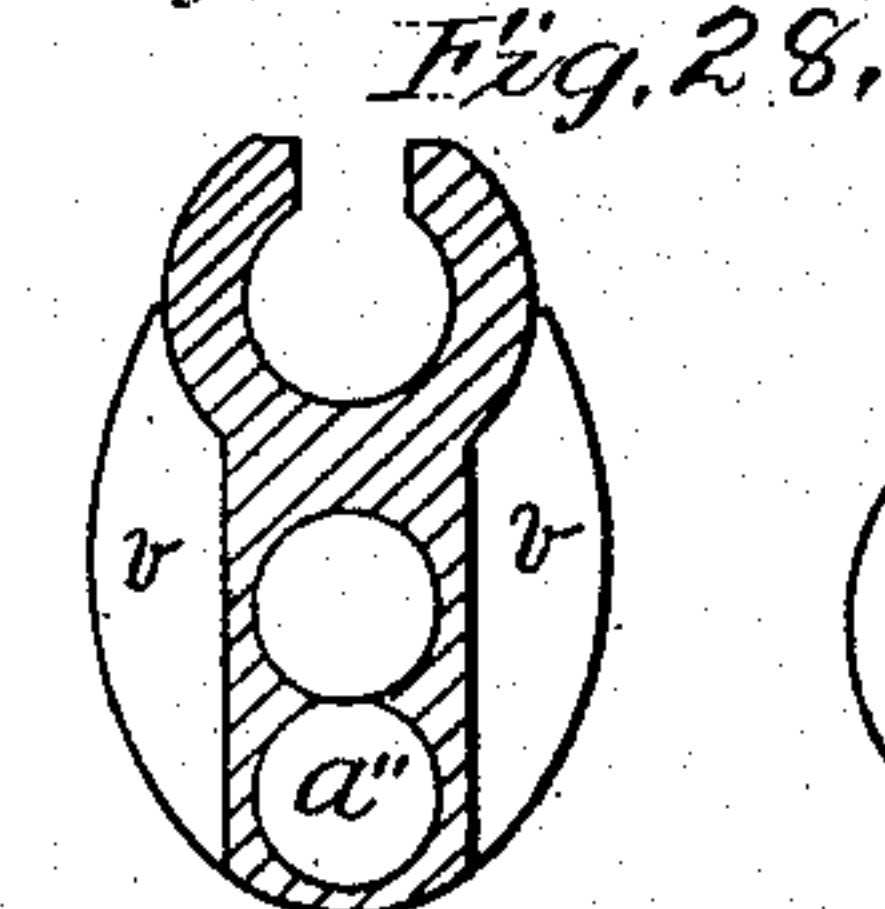
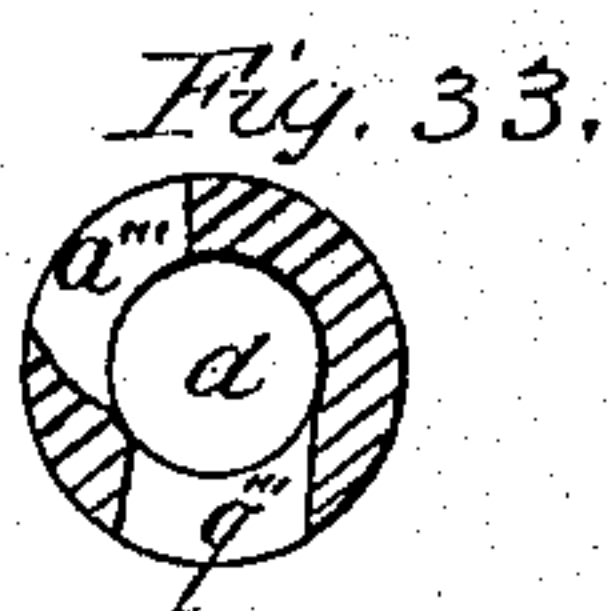
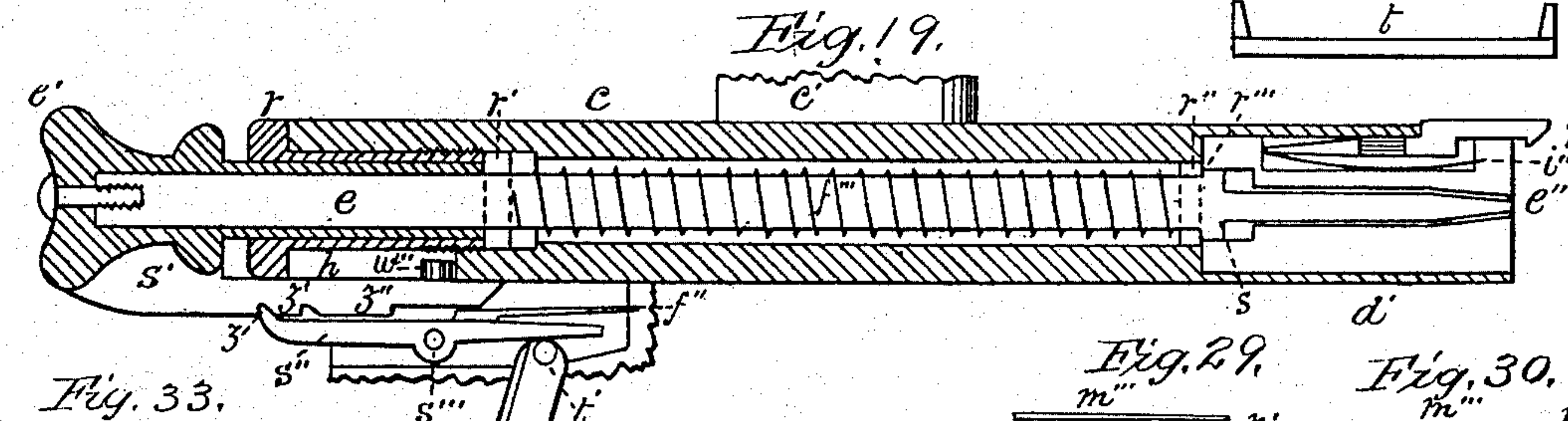
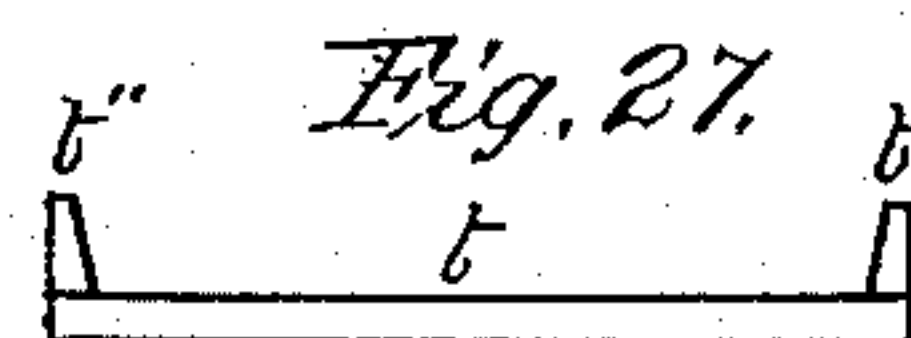
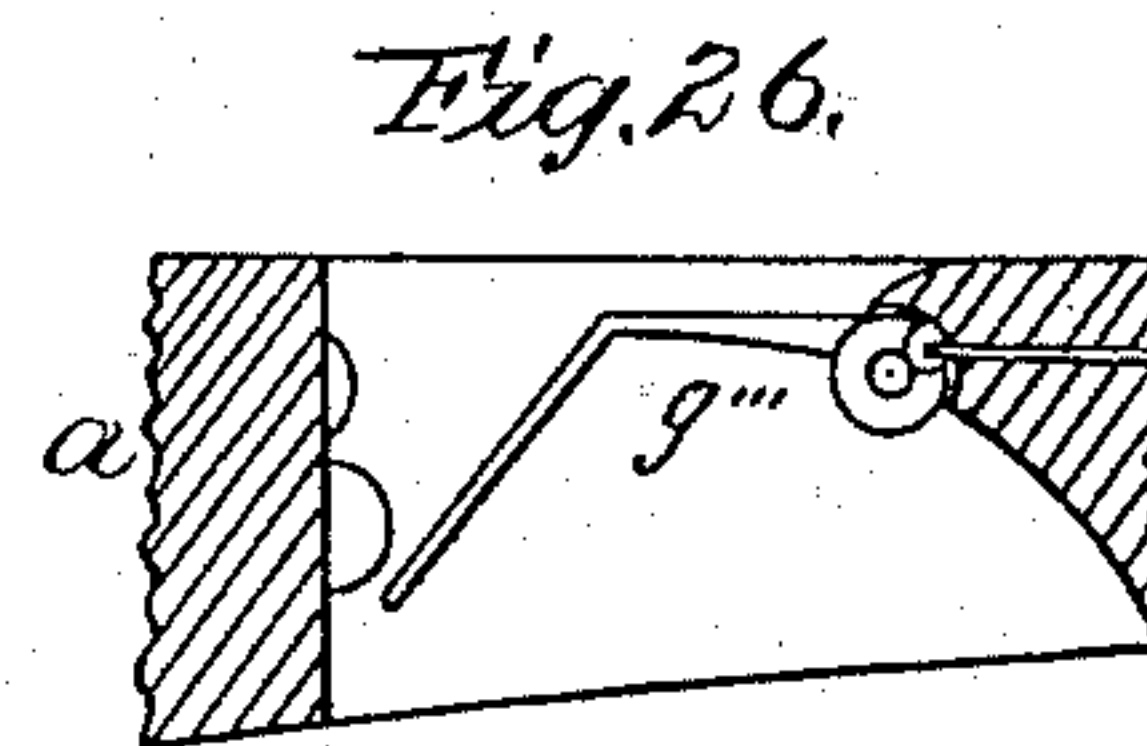
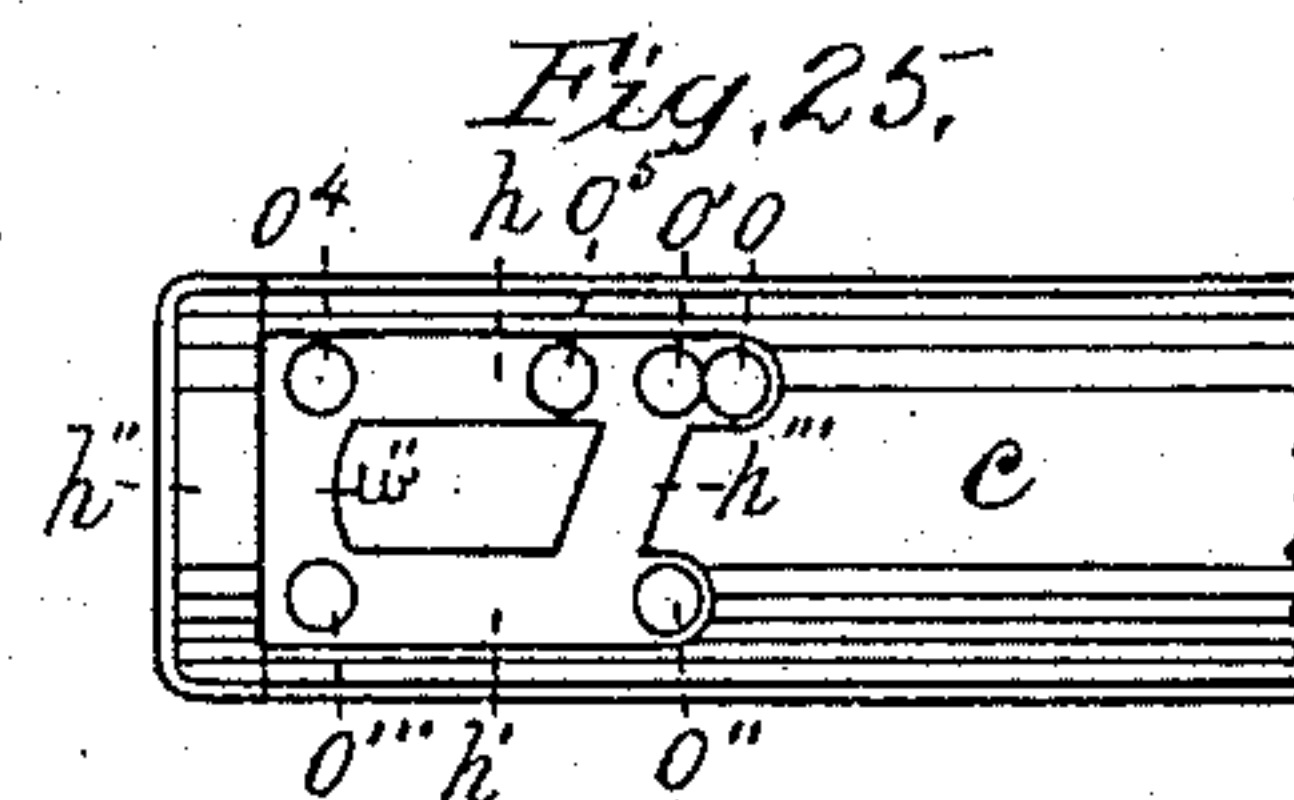
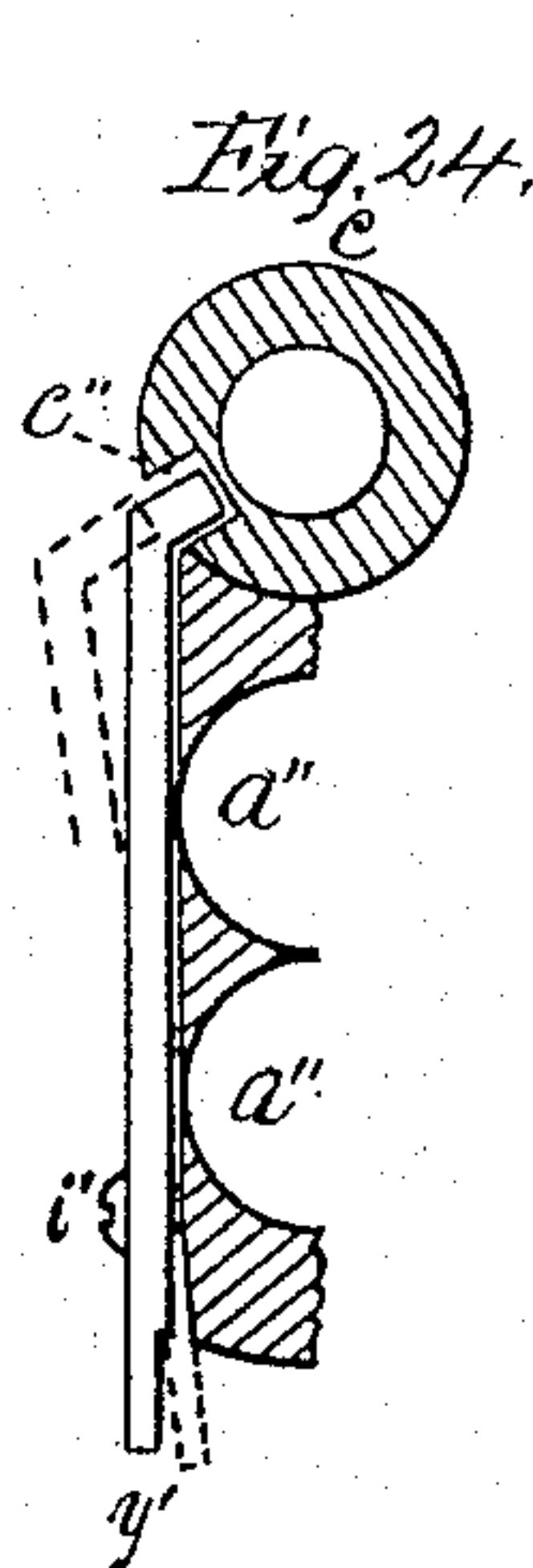
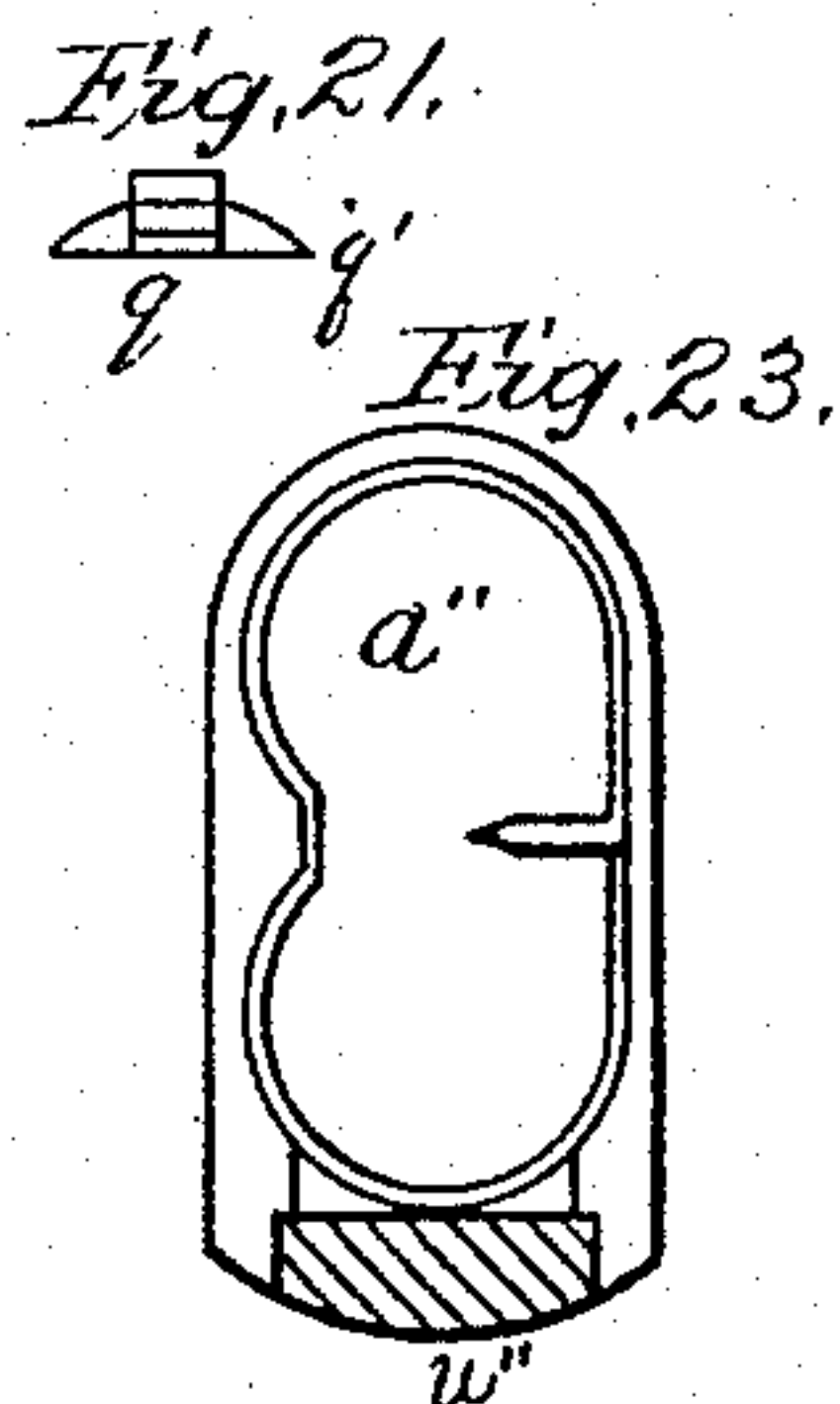
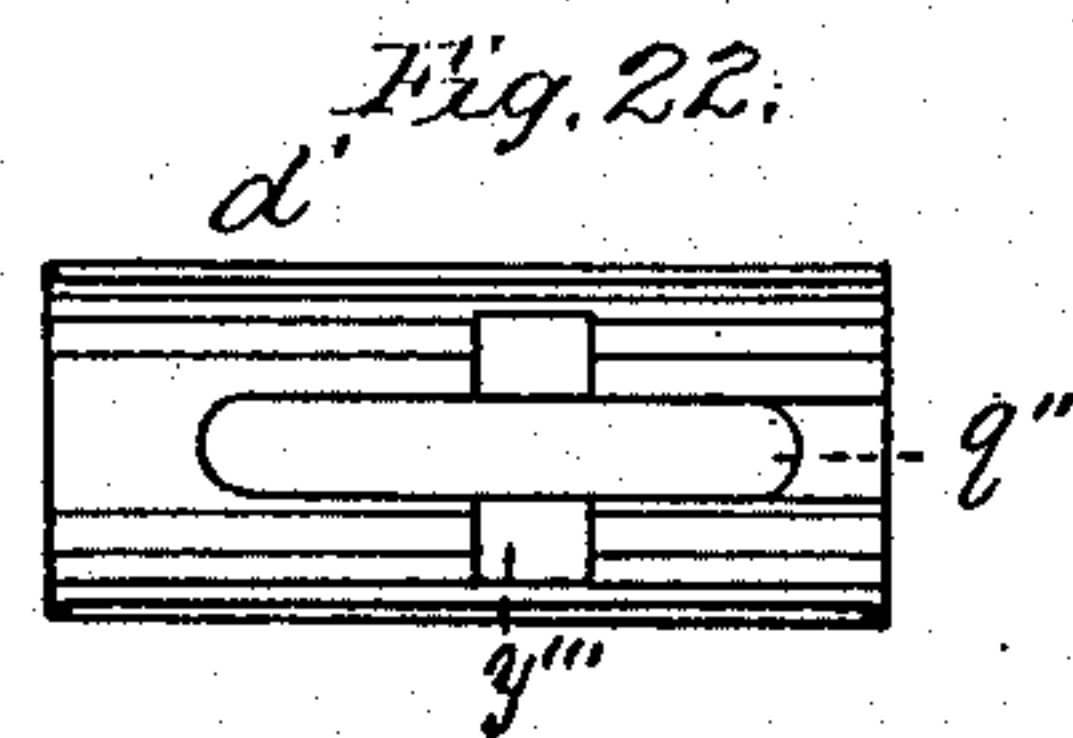
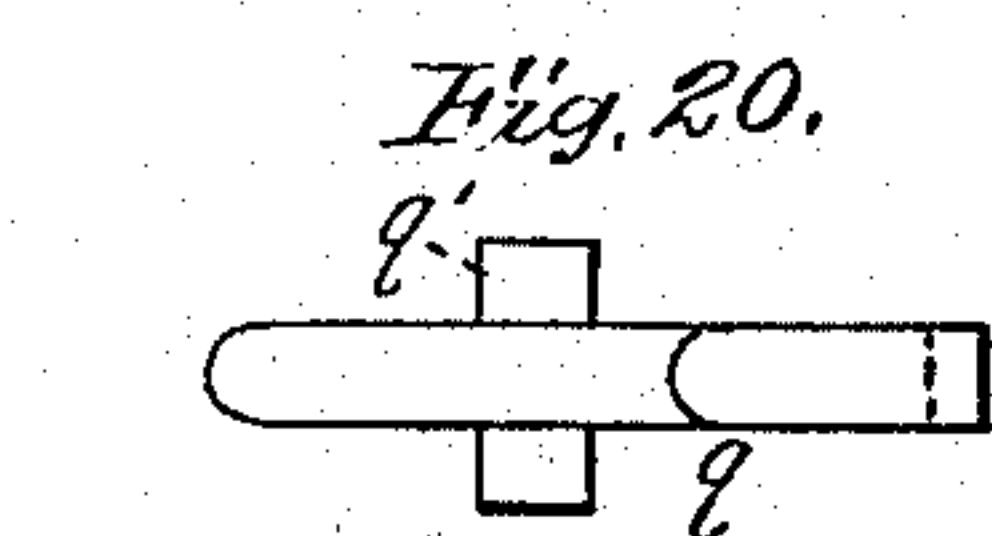
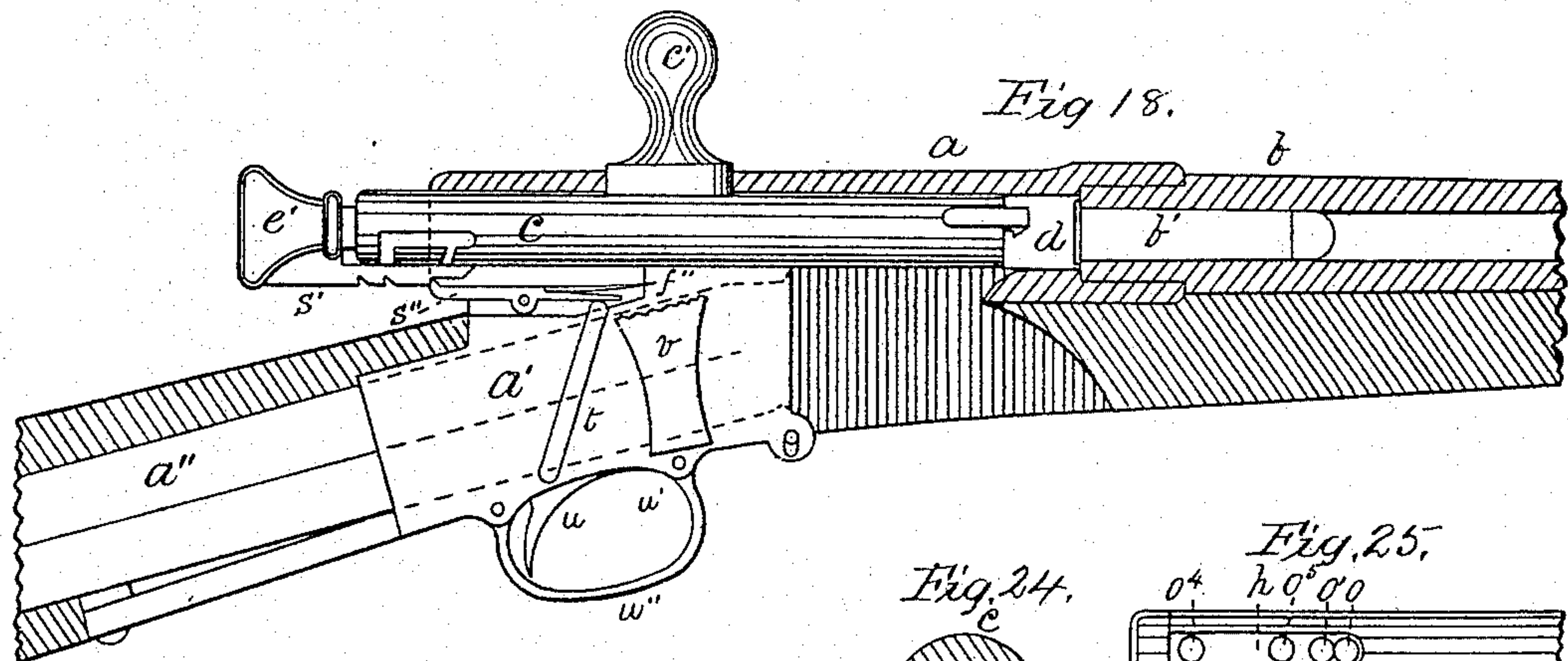
Witnesses.
Louis E. Moore
Geo. C. Richardson

Inventor
Wm. H. Elliot

W. H. ELLIOT.
Magazine Fire Arm.

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UNITED STATES PATENT OFFICE.

WILLIAM H. ELLIOT, OF NEW YORK, N. Y.

MAGAZINE FIRE-ARM.

SPECIFICATION forming part of Letters Patent No. 229,812, dated July 13, 1880.

Application filed April 20, 1880. (No model.)

To all whom it may concern:

Be it known that I, WM. H. ELLIOT, of the city and State of New York, have invented a new and Improved Magazine Fire-Arm, of which the following is a specification.

The object of my invention is to provide a more convenient, simpler, and more practical fire-arm than any now in use; and the nature of my invention consists in the use of certain appliances and methods, which are fully set forth in the following specification and claims.

Figure 1 is a vertical longitudinal section of the stock, upper portion of the receiver and carrier, and an elevation of the lower portion of the receiver and feeding devices. Fig. 2 is an elevation of the bolt. Fig. 3 is an elevation of one of the cheeks, showing the cut-off lever. Fig. 4 is an elevation of the feed-pawl spring. Fig. 5 shows two views of the feed-lever. Fig. 6 shows two views of the feed-pawl. Fig. 7 shows two views of the ratchet and revolving feed-cylinders. Fig. 8 is an elevation of the core which is inserted in the forward end of the bolt. Fig. 9 is a plan of the ejector. Fig. 10 is a front elevation of the forward end of the bolt. Fig. 11 is a side elevation of the same. Fig. 12 is a side elevation of the carrier in position to charge the magazine. Fig. 13 is a section of the core. Fig. 14 is a side elevation of the ejector. Fig. 15 is a side elevation of the carrier in position to cover the magazine. Fig. 16 is the same in position to lift the cartridge into the receiving-chamber. Fig. 17 is an end elevation of the ejector. Fig. 18 is a vertical longitudinal section of the stock and upper portion of the receiver, and an elevation of the lower part of the receiver, the bolt, and the lock. Fig. 19 is a vertical longitudinal section of the bolt and an elevation of the lock, showing all parts in their relative positions. Fig. 20 is a plan of the extractor. Fig. 21 is an end view of the same. Fig. 22 is an elevation of the core. Fig. 23 is an elevation of the rear end of the lower part of the receiver. Fig. 24 is a vertical cross-section of a portion of the receiver, with the feed-lever in elevation. Fig. 25 is a view of the lower side of the rear end of the bolt. Fig. 26 represents a modification of the carrier. Fig. 27 is an elevation of the connection between the trigger and sear. Fig. 28 is a vertical cross-

section of the receiver, showing the cheeks in elevation. Fig. 29 is a section of a portion of the lower part of the receiver, showing the admission of a cartridge past the feed-cylinder. Fig. 30 is the same, showing a cartridge passing out of the magazine. Fig. 31 is the same, showing a cartridge stopped by the feed-cylinder. Fig. 32 is a section of one of the cheeks. Fig. 33 is a vertical cross-section of the receiver through the receiving-chamber.

a is the receiver, into the forward end of which the barrel *b* is screwed. *a'* is that portion of the receiver into which the magazine-tubes *a''* are fastened; *a'''*, entrance to the receiving-chamber, through which cartridges are inserted and shells ejected; *b'*, chamber of the barrel; *b''*, cartridges; *b'''*, followers; *c*, bolt; *c'*, handle of the same; *c''*, groove in the side of the same; *c'''*, cam in groove *c''*; *d*, receiving-chamber; *d'*, core; *d''*, ejector; *d'''*, projection on the ejector; *e*, hammer-rod; *e'*, head of the same; *e''*, point of the same; *e'''*, bed of the ejector in the core; *f*, ejector-spring; *f'*, magazine-springs; *f''*, sear-spring; *f'''*, main-spring; *g*, carrier; *g'*, pivot of the same; *g''*, spring of the same; *g'''*, modification of the carrier; *h* and *h'*, parallel grooves in the rear end of the bolt; *h''* and *h'''*, cross-grooves in the same; *i*, feed-lever; *i'*, pivot of the same; *i''*, pin on feed-lever *i*; *i'''*, extractor-spring; *m*, feed-pawl; *m'*, groove in the same; *m''*, mortise through the same; *m'''*, spring of same; *n*, feed-ratchet on the same shaft with feed-cylinders *n'*; *n''*, pivot of the same; *n'''*, elongated bearing for pivot *n''*; *o*, *o'*, *o''*, *o'''*, *o''''*, and *o''''''*, different positions of the pin *w'''* in the grooves *h*, *h'*, *h''*, and *h'''*; *p*, cut-off lever; *p'*, pivot of the same; *p''*, wedge portion of the same; *p'''*, broken lines, Fig. 16; *q*, extractor; *q'*, arms or fulcrum of the same; *q''*, bed in the core for the same; *q'''*, opening for cartridges to pass into the receiving-chamber from the magazine; *r*, thimble screwed into the rear end of the bolt; *r'*, washer resting against the inner end of the thimble; *r''*, washer resting against the shoulder *r'''* within the bolt; *s*, shoulder on the hammer-rod supporting washer *r''*; *s'*, tumbler rigidly fastened to the head *e'*; *s''*, sear; *s'''*, pivot of the same; *t*, connection between the trigger *u* and sear *s''*; *t'* and *t''*, pins projecting from the same; *t'''*, beveled edge

of the same; w' , pivot of the trigger; w'' , guard; w''' , handle of the carrier; v , cheeks; v' , recesses or notches in feed-cylinder n' ; v'' and v''' , points on the pawl which move the ratchet; 5 w , projection on the joint of the carrier; w' , stop for the same on the receiver; w'' , cam on the bolt; w''' , pin on the tumbler s' ; x , rear end of the groove c'' ; x' , a portion of the bolt cut away to allow a little backward movement 10 of the feed-lever, pawl, and feed-cylinders when charging the magazine; x'' , arms of the ejector; y , lips on the forward end of the bolt; y' , thumb-piece on the feed-lever i ; y'' , cross-cut or recess on the core for arms x'' on the ejector; y''' , same for arms q' on the extractor; z , 15 safety-notch on tumbler s' ; z' , lock-notch; z'' , full-cock notch.

The inventions herein described refer to that kind of magazine-arm in which the breech- 20 block has a reciprocal movement in a line with the barrel for opening and closing the chamber and an oscillating movement for locking the same, and are improvements upon the arm secured to me by patents dated August 12, 25 1879, February 17, 1880, and March 23, 1880, to which special reference is made.

The methods and devices herein shown for firing the arm and for feeding the cartridges from the magazine into the receiving-chamber 30 will work equally well in connection with a magazine of one or more tubes arranged under the barrel or with two tubes arranged side by side in the butt-stock.

For a magazine I employ two or more stationary tubular chambers, each containing independent cartridge-propelling devices of the 35 ordinary construction, which are located in the butt-stock of the arm and arranged one over the other. These tubes are soldered or screwed to the receiver, and, extending backward through the butt-stock, are screwed to a 40 plate or washer suitably bedded therein or to the butt-plate, as set forth in said patents.

To charge the magazine the carrier has to 45 be pulled out at the bottom of the receiver, so as to assume the position shown in Fig. 12, where it is held by spring g'' , and, as in the patent first above mentioned, I pivot it to the receiver under, or nearly under, the mouth of 50 the magazine, whereby it is practicable to swing it entirely out of the way, so as to charge the magazine over it, and also to make it serve as a cover to the magazine when closed. It may, however, be pivoted to the receiver under, or 55 nearly under, the forward end of the receiving-chamber, as shown in Fig. 26, in which case it should be provided with a stop, such as shown in Figs. 15 and 16. It may be operated by a suitable connection with the feed- 60 lever or with the bolt. In that case its movements would become partially or entirely positive.

In charging the magazine the cartridges are passed into the same in the usual way through 65 an opening in the lower side of the arm, and as the head of each cartridge passes a feed-

cylinder that device rises in its elongated bearing n''' , as seen in Fig. 29, to allow the cartridge to pass freely in. As soon as the cartridge has passed, the cylinder, by the action 70 of spring m''' , immediately assumes the position shown in Fig. 31.

As seen in Fig. 7, the two feed-cylinders are on the same shaft with the ratchet n . The cylinders are arranged one over each tube or each 75 line of cartridges. The axis of the ratchet or cylinder shaft is not arranged at right angles to the magazine-tubes, but is inclined backward considerably at the upper end, as seen in Fig. 1, which causes the lower cartridge to 80 project forward of the upper one at the mouth of the magazine. This facilitates the carrying of the lower cartridge past the upper one by the carrier.

The long diameter of the bearing n''' is arranged at an angle of about forty-five degrees 85 from the axis of the magazine-tubes, so that when the pivot n'' has returned to the position shown in Fig. 31 no amount of force that can be applied to it by the magazine-spring 90 will move it.

The feed-cylinders have each two recesses, or notches, v' , on opposite sides, and the cylinders are so arranged on the shaft with each 95 other and with the ratchet that at each quarter-turn of the ratchet one of the recesses presents itself to the rim of a cartridge, which, by the power of the magazine-spring, passes into it, as seen in Fig. 30, and as the cylinder continues its movement the cartridge is permitted to pass by and out at the mouth of the 100 magazine, being forced forward by the propelling devices in the usual way. The next cartridge is stopped by striking upon the outer surface of the cylinder, where it waits till another recess presents itself. As each cylinder 105 has two recesses, one opposite to the other, and one of said recesses is presented to the cartridges at each quarter-turn, it follows, therefore, that a cartridge from each tube alternately is permitted to pass out, whereby the 110 whole magazine is emptied as if it were a single tube containing a single line of cartridges.

The ratchet is revolved by means of the pawl m , which may be connected directly or indirectly with the bolt. In the present application I show it connected with the bolt through the 115 medium of the feed-lever i . This lever is pivoted to the receiver at i' , and has its upper end bent into the groove c'' , as shown in Fig. 24. The pawl is connected with the feed-lever by means of the pin i'' and groove m' . The points 120 v'' and v''' on the pawl, at each end of the mortise m'' , act upon the teeth of the ratchet at each backward and forward movement of the 125 pawl.

In the sectional view of the pawl, Fig. 6, the point v'' is shown acting upon the ratchet in its backward movement. When this movement is completed the next tooth forward will 130 be in front of point v''' , when a forward movement of the pawl brings the next tooth back

before the point v'' . In this way the ratchet and cylinders are revolved one-fourth of a revolution at each complete movement of the bolt. The pawl m is supported by and rests upon the ratchet-shaft at its rear end, so that by the action of the spring m''' these devices are not liable to be moved by accident.

The direct forward movement of the bolt, which brings the bent end of lever i to the end of the groove at x , is not sufficient to act upon the ratchet; but by the rotation of the bolt in the act of locking it the cam c''' is carried past the upper end of the lever, which gives movement enough to the pawl to cause the point v''' to act upon the ratchet and bring the next tooth before the point v'' , which prepares a feed-cylinder to release a cartridge at the next backward movement of the pawl.

In making a rearward movement of the bolt the bent end of lever i is carried backward by the forward end of the groove c'' or by the ejector, as shown in Fig. 1.

By this construction and arrangement of devices the accident of getting a cartridge from the magazine into the receiving-chamber before the shell of the preceding cartridge has been thrown out cannot occur, as that movement of the bolt which prepares a feed-cylinder to release a cartridge from the magazine is made after the hook of the extractor has been forced over the head of the cartridge-shell in the chamber of the barrel by the direct forward movement of the bolt.

While charging the magazine it is necessary to push the bolt forward and lock it. This movement brings the bent end of the feed-lever before the recess x' , whereby room is provided for the lever to make a backward movement to accommodate the backward and outward movement of the cylinders before described; and this provision is essential, as the cylinders, in making the backward and outward movement to admit cartridges, must necessarily carry the pawl and lever to the rearward with them.

During the last half of the movement of the feed-lever backward the spring f is depressed, and as soon as the bolt is released from the hand or is permitted to move forward the said spring causes it to assume the position shown in Fig. 1, where it may be seen that the receiving-chamber is so much shortened by this forward movement that the cartridge resting against and confined by the extractor and ejector at its rear end projects a little into the chamber of the barrel, which secures the cartridge against the accident of falling out of the receiving-chamber, though the arm may be turned with the bolt downward.

In loading the arm as a single breech-loader the ball has first to be inserted a little way into the chamber of the barrel, and then the head of the cartridge passed into the receiving-chamber by lateral movement.

As a cartridge moves out of the magazine it forces the carrier forward until the projec-

tion w on the joint of the carrier brings up against the stop w' on the receiver, and when the magazine-spring ceases to act upon the cartridge the spring g'' immediately brings the carrier back to its place, carrying the cartridge up to a proper position before the bolt, and supporting it there.

When it becomes necessary to charge the magazine the carrier is first brought to the position shown in Fig. 16 by the use of the handle u''' , when, by pressure of the thumb on projection w , the carrier is moved up to the broken lines p''' . The projection will then pass the stop, and the carrier will readily come to the position shown in Fig. 12, the bearing in the carrier for the pivot g' being elongated to accommodate this movement.

The bolt is prepared for the reception of the extractor and ejector by boring it out at the forward end to the depth of about an inch and a half, so as to leave a shell of about one-twelfth of an inch in thickness, as shown in Figs. 2, 10, and 19. This bore is filled by a plug or core, which has a central opening through it for the point of the hammer-rod. It also has two beds cut in it on opposite sides, one for the ejector and one for the extractor, and it is fastened in place by two screws, one of which is shown in Fig. 11.

The bed for the ejector is a longitudinal recess cut the entire length of the core, and when the core is in place this recess is continuous with the groove c'' . It also has a cross-cut, as shown in Figs. 8 and 13, into which the arms x'' of the ejector project. These arms working in the cross-cut furnish an unyielding stop for the ejector in its forward movement, when it is carried back against the bent end of lever i and in its rearward movement, when it receives the recoil of the cartridge-shell.

The ejector is furnished with a lip, d''' , on its forward end, which is continuous with the lips y on the bolt, as shown in Figs. 10, 11, and 14. These lips are undercut, so that when the cartridge-head is forced against them by the extractor they resist the action of the ejector and retain the shell until the ejector-spring is considerably depressed, so that when the resistance of the lips y is finally overcome the shell is thrown out of the receiving-chamber by the action of said spring.

When whole cartridges are ejected the chamber of the barrel acts as a retainer with the lips y . The ejector has also a projection on its rear end, which gives it a longer bearing upon its bed.

The bed q'' for the extractor q (shown in Figs. 19 and 22) also has a cross-cut, q''' , for the arms q' , which serve not only to hold the extractor rigidly against any force applied to it while manipulating the arm, but they serve also as a fulcrum for the extractor resting against the inner surface of the bolt.

An elliptical spring, i''' , is placed in the bottom of the bed under the extractor, which throws its rear end outward and its forward

end or hook inward against the cartridge-head, as shown in Fig. 19.

The lip d''' on the ejector prevents the cartridge-head from slipping away from the extractor-hook after it is beyond the reach of the lips y on the bolt, whereby the action of the ejector upon the shell is continued much longer and is much more effectual than it would be without said lip.

The forward end of the bolt is assembled by putting the extractor with its spring in its bed and the ejector in its bed in the core, and while holding them in their places pass the whole into the end of the bolt and put in the screws y'' .

The presence of the bent end of lever i between the ejector d'' and its spring f is not an essential element in the combination of devices for ejecting the shell. The direct action of spring f on the ejector would serve the same purpose.

When a cartridge has reached the receiving-chamber from the magazine, or has been inserted therein by hand, the bolt is pushed forward, locked, and the arm fired in the usual way. The bolt is then withdrawn, the empty shell is thrown out, and a new cartridge admitted into the receiving-chamber, as already described.

The hammer or hammer-rod e is provided with a head, e' , to which the tumbler s' is rigidly fastened, and it is made to rebound by the washers r' and r'' and the shoulders within the bolt, as shown in my patent before mentioned. The mainspring rests at its rear end against washer r' and at its forward end against washer r'' . This forces the rear washer against the inner end of thimble r and against the end of the tubular portion of the head e' , and the forward washer, r'' , against the shoulder r''' on the core d' , and the shoulder s on the hammer-rod. While the parts are in this position the point of the hammer-rod is flush with the end of the bolt, as shown in Fig. 19. When the hammer falls from full-cock its impetus causes it to carry the washer r forward, depressing the mainspring a little and thrusting the point e'' out of the bolt far enough to fire the charge, when, by the action of the mainspring upon washer r' , the point e'' is immediately retracted.

The sear s'' is pivoted to the receiver at s''' , and is actuated by the trigger u through the medium of the connection t .

The employment of the grooves h h' , &c., on the under side of the bolt and the pin w''' on the tumbler, to work therein, is a security against accidents and a sure indication of the working condition of the lock. During the manipulation of the arm the pin w''' occupies all the positions indicated by the letters o o' , &c. At the moment of discharge the pin w''' occupies the position o in groove h , Fig. 25, when it immediately rebounds to the position o' . On unlocking the bolt the point passes up the diagonal groove or cam h''' and drops into the position or recess o'' , groove h' . This

position has two objects: first, it locks the hammer and tumbler in relation to the bolt, so that on drawing the tumbler out of the receiver it will not accidentally get displaced and so interrupt the movement of the bolt; second, this groove is not long enough to allow the point of the hammer-rod to project out of the end of the bolt, and so makes it impossible to discharge the arm while the bolt is unlocked.

On moving the bolt forward to close the arm the point of the sear engages the full-cock notch and the pin w''' moves to the position o''' . On locking the bolt the point passes over cam w'' , through grooves h'' , to the position o^4 , from which it falls, when the arm is fired, through grooves h to the position o .

When it becomes necessary to lock the bolt, so as to prevent it from rotating when the arm is closed, the hammer is drawn back till the point of the sear falls into the lock-notch z' . This brings the pin w''' to o^5 , groove h , in which position the bolt cannot be rotated. As the pin passes over the cam w'' it forces back the tumbler sufficiently to relieve the point of the sear, thus giving it a second opportunity to adjust itself in the full-cock notch before the parts are brought to a position in which accidents can occur.

That portion of the bolt which composes the inner walls of the several grooves, and upon which the cam w'' is formed, may be dispensed with, which would make the bolt simpler and less expensive in construction, and still it would perform nearly all the functions described. The thimble r may be dispensed with and a shoulder for the washer r' to rest upon may be formed by three screws projecting a little into the interior of the bolt.

The cheeks v (shown in Figs. 18 and 28) form shoulders for the butt-stock and tip-stock, and they are undercut, as shown in Fig. 32, so that when the stocks are forced against them they are firmly held in position without screws. These cheeks may be fastened upon the receiver by screws, or they may be formed of one piece with the receiver.

Into the left cheek of the arm the cut-off lever p is pivoted at p' . To cut off and reserve the magazine it is only necessary to depress the upper end of the cut-off lever, which forces the wedge p'' under the pawl m and raises that device clear of pin i'' , so that the pawl will no longer be actuated by the lever. The pressure of spring m''' upon the pawl-and-ratchet shaft holds these devices stationary by friction when not connected with the lever.

The form of the ratchet and its arrangement upon the shaft in relation to the feed-cylinders, and also the form and arrangement of the feed-cylinders, are susceptible of many modifications. Instead of two feed-cylinders a single one may be employed upon a shaft, which is arranged over and between the magazine-tubes and parallel with them, said cylinder projecting a little into both tubes and provided with longitudinal or spiral recesses

or notches, which are so arranged in relation to the magazine-tubes and to the ratchet that they will be presented alternately to the cartridge-heads in each tube.

5 The cartridges may be passed into the magazine without displacing the pivot n'' in its bearing n''' simply by making a portion of the tubes opposite the feed-cylinders movable, so as to make room for the head of the cartridges
10 to pass around those devices.

The bent end of lever i , working in groove c'' , serves as a stop to the backward movement of the bolt; but the bolt may readily be removed from the receiver by pressing upon
15 the thumb-piece y' on the lever, when that device will assume the position of broken lines. Fig. 24, which allows the bolt to be drawn out.

Having described my invention, what I desire to have secured to me by Letters Patent
20 of the United States is—

1. In a magazine fire-arm, the combination, with a double tubular magazine provided with independent cartridge-propelling devices, of the revolving feed-cylinders n' , provided with
25 the notches or recesses v' and ratchet n , rotating in suitable bearings on the receiver over the magazine, the pawl m , actuated by lever i , which is pivoted to the receiver, and projects at its upper end into groove c'' in the bolt c , all arranged and operating substantially as described.

2. In a magazine fire-arm, the combination, with a double tubular magazine provided with independent cartridge-propelling devices, of
35 the revolving feed-cylinders n' , provided with the recesses v' , ratchet n , rotating in suitable bearings on the receiver, the pawl m , lever i , and bolt c , the said recesses in the cylinders being arranged in relation to the ratchet, as shown and described, whereby the cartridges
40 are released alternately from each tube of the magazine, as specified.

3. In a magazine fire-arm, the combination, with a double tubular magazine provided with
45 independent cartridge-propelling devices, of the revolving feed-cylinders n' , ratchet n , rotating in bearings on the receiver over the magazine, and spring m''' , said bearings being elongated diagonally backward, as shown and described, whereby the cylinders are allowed
50 to move outward from the magazine-tubes to make room for the cartridge-heads to pass them, as specified.

4. In a magazine fire-arm, the combination, with a tubular magazine provided with the
55 usual cartridge-propelling devices, of the carrier g , pivoted to the receiver and provided with projection w , of the spring g'' and stop w' on the receiver, the bearing in said carrier for the pivot being elongated, as shown and described, whereby the carrier may be removed from before the magazine, substantially as and for the purpose specified.

5. In a fire-arm having a longitudinally-reciprocating bolt, the combination therewith
65 of the core d' , inserted in its forward end, said core having the extractor with its spring

and the ejector bedded therein, and all fastened in the end of the bolt by fastening the core, substantially as shown and described.

6. In a fire-arm, a bolt provided with a groove, c'' , and a core, d' , inserted in its forward end, said core having a parallel recess or cut, e''' , through its entire length in continuation of
70 groove c'' , and a cross recess or cut, y'' , in combination with the ejector d'' , provided with arms x'' , whereby the ejector is fastened in the end of the bolt and its movements limited, substantially as shown and described.

7. In a fire-arm, a bolt having a longitudinal
80 movement in a line with the barrel, and provided with a core, d' , inserted in its forward end, said core having a parallel recess, q'' , and a cross-recess, y''' , in combination with the extractor q , provided with arms q' , and spring
85 i''' , whereby said extractor is held in place within the bolt, and is furnished with a fulcrum, upon which it tilts in riding over the head of a cartridge, substantially as specified.

8. In a magazine fire-arm, in combination
90 with a bolt, c , provided with lips y , the extractor q , with its spring i''' , and the ejector d'' , provided with the lip d''' , whereby the cartridge-head is held up to the hook of the extractor after it has been forced by the ejector
95 away from the lips on the bolt, substantially as and for the purpose specified.

9. In a magazine fire-arm having a reciprocating and oscillating bolt provided with
100 groove c'' and cam c''' in the rear end of said groove, and in combination therewith, the feed-lever i , pivoted to the receiver-pawl m , and the ratchet, and feed-cylinders n and n' , rotating in bearings over the magazine, operating substantially as described, whereby that movement
105 of the bolt which prepares a feed-cylinder to release a cartridge from the magazine occurs after the hook of the extractor has grasped the shell of the preceding cartridge, as and for the purpose specified.

10. In a fire-arm having a reciprocating and oscillating bolt provided with the hammer e , rebounding devices consisting of washers r' and r'' , and the several shoulders within the
110 bolt, groove, or cam h''' , and recess o'' , and in combination therewith the tumbler s' , rigidly fastened to the hammer, and provided with pin w''' , and sear s'' , pivoted to the receiver, whereby the said pin is carried from the rebounded position to the recess o'' , substantially
120 as and for the several purposes specified.

11. In a fire-arm having a reciprocating and oscillating bolt provided with a cam, w'' , on its rear end, and in combination therewith the
125 tumbler s' , rigidly fastened to the hammer, and provided with pin w''' and the usual notches, and sear s'' , pivoted to the receiver, said parts being so arranged and operating that the sear shall be entirely relieved of the pressure of the tumbler, while the lock is in the cocked position, whereby the sear has a second chance to
130 adjust itself, substantially as specified.

12. In a magazine fire-arm, a reciprocating and oscillating bolt provided with groove c'' ,

cam c''' , and recess x' , and in combination therewith the feed-lever i , pivoted to the receiver, pawl m , ratchet n , and feed-cylinders n' , rotating in elongated bearings n''' , operating substantially as described, whereby a backward movement of the lever and pawl is allowed to accommodate the backward movement of the cylinders while charging the magazine, as specified.

10 13. In a fire-arm, a reciprocating bolt or breech-block provided with the groove c'' , and

in combination therewith the spring f , supported upon the side of the receiver, and the connection i between said bolt and spring, working in said groove, whereby the bolt on 15 being released by the hand is moved forward so as to shorten the receiving-chamber, substantially as and for the purpose specified.

WM. H. ELLIOT.

Witnesses:

M. L. ELLIOT,
LOWELL ELLIOT.