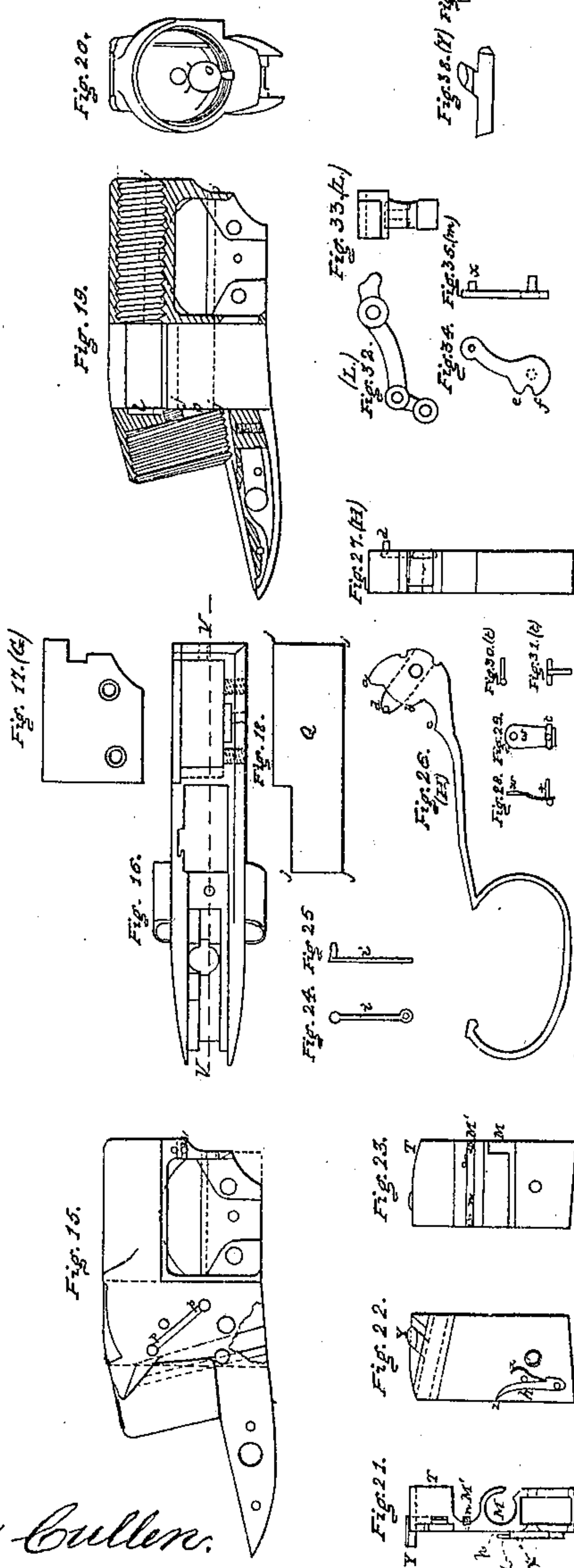
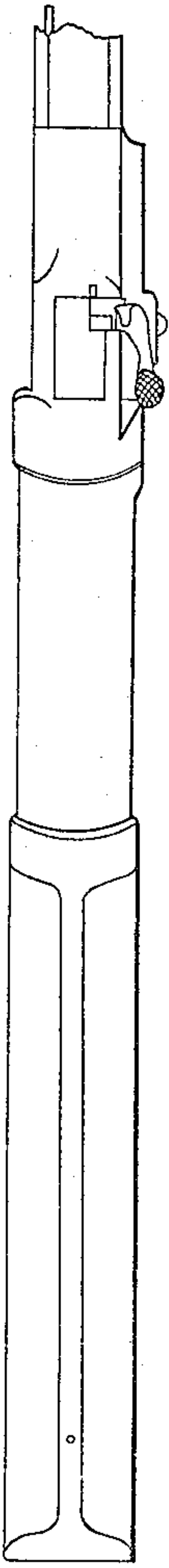
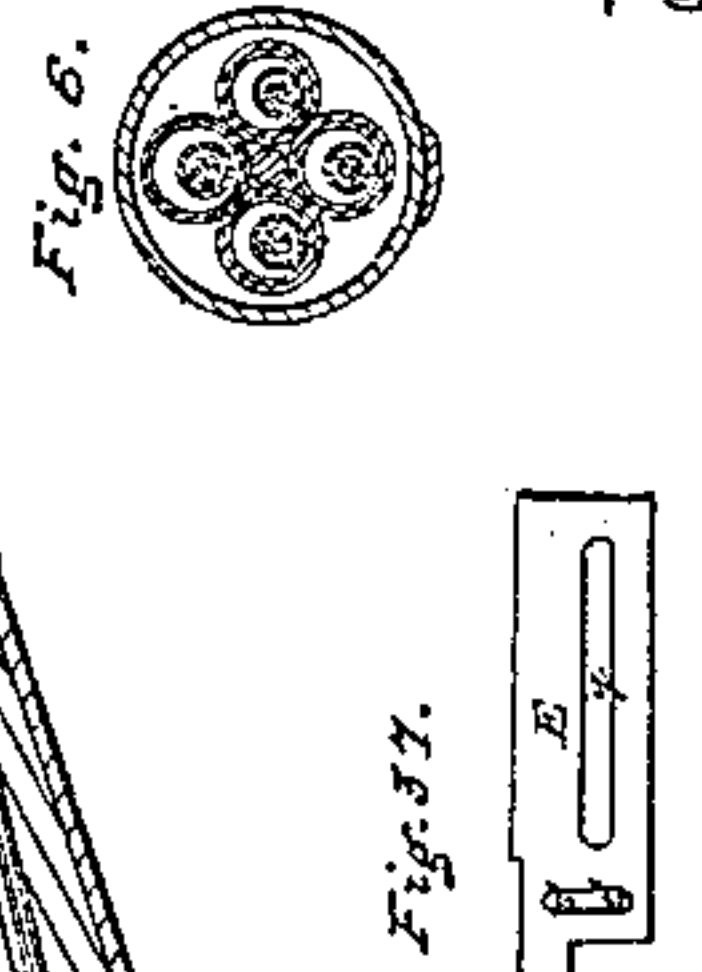
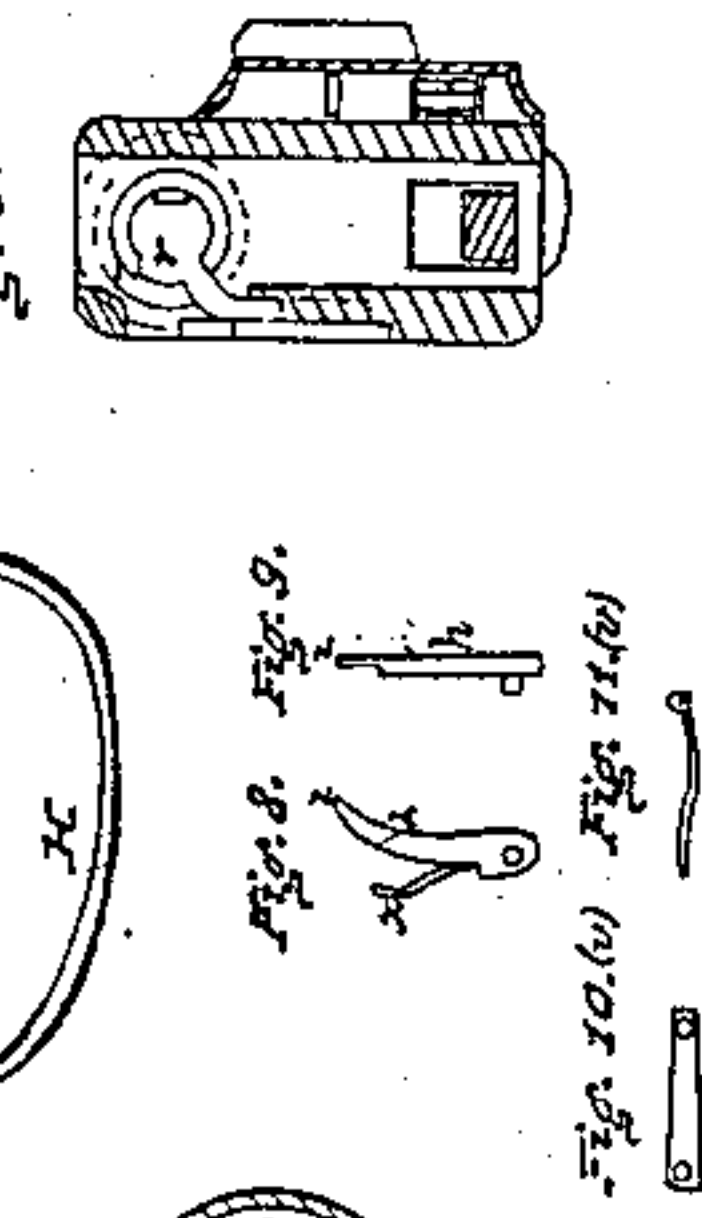
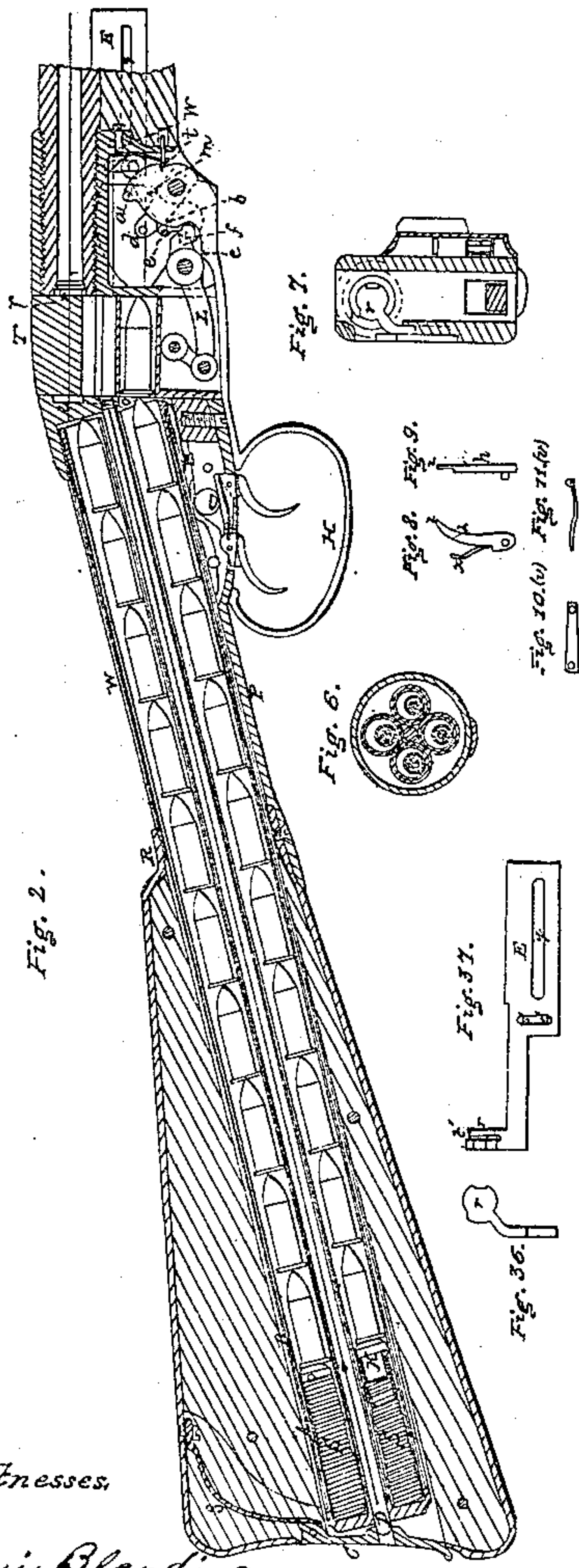
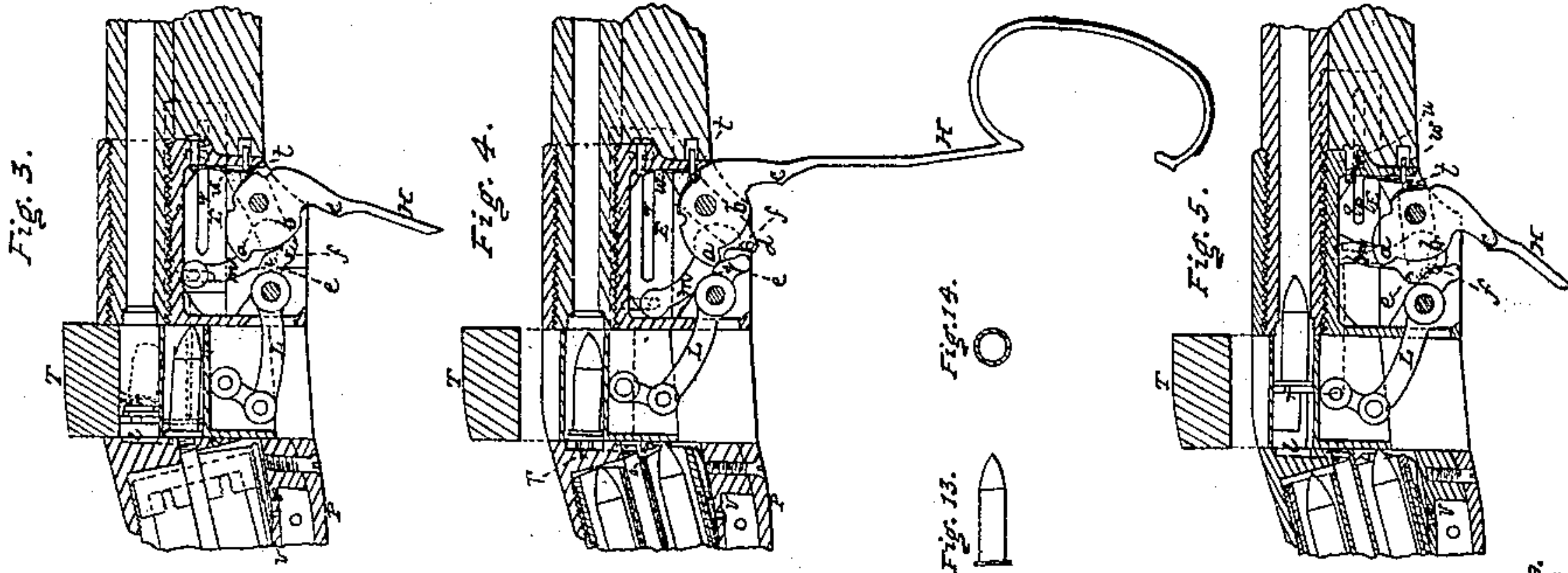


T. CULLEN.  
MAGAZINE FIREARM.

No. 88,853.

Patented Apr. 13, 1869.



Witnesses.

Louis Blanding  
J. Gordon.

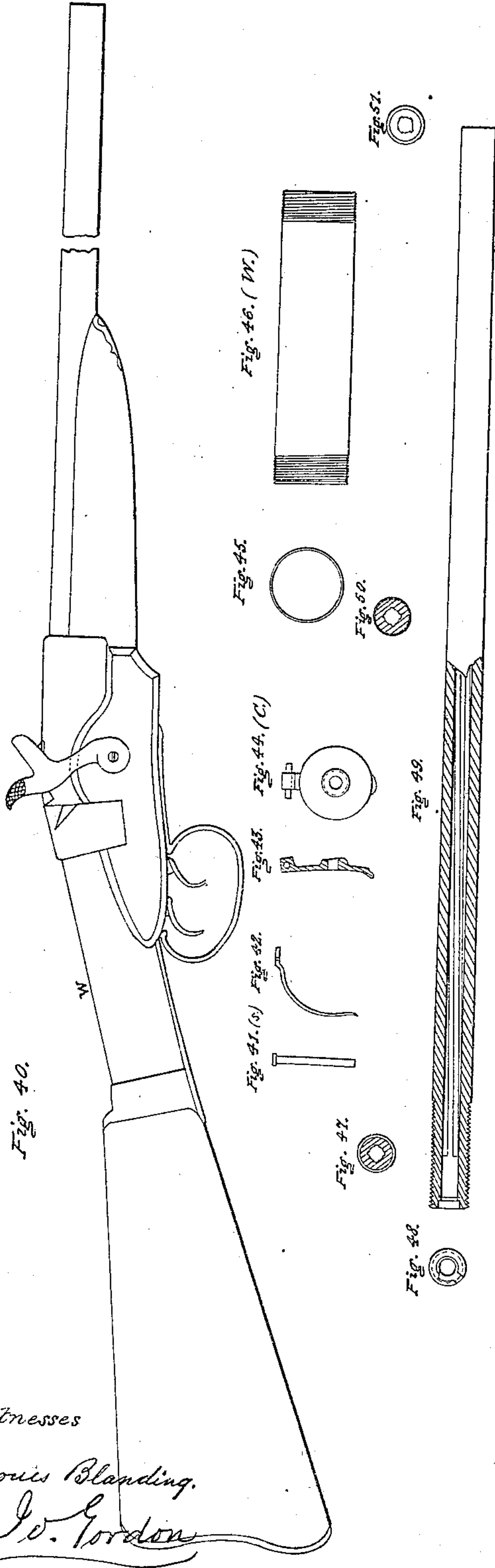
Inventor -

Thomas Cullen.

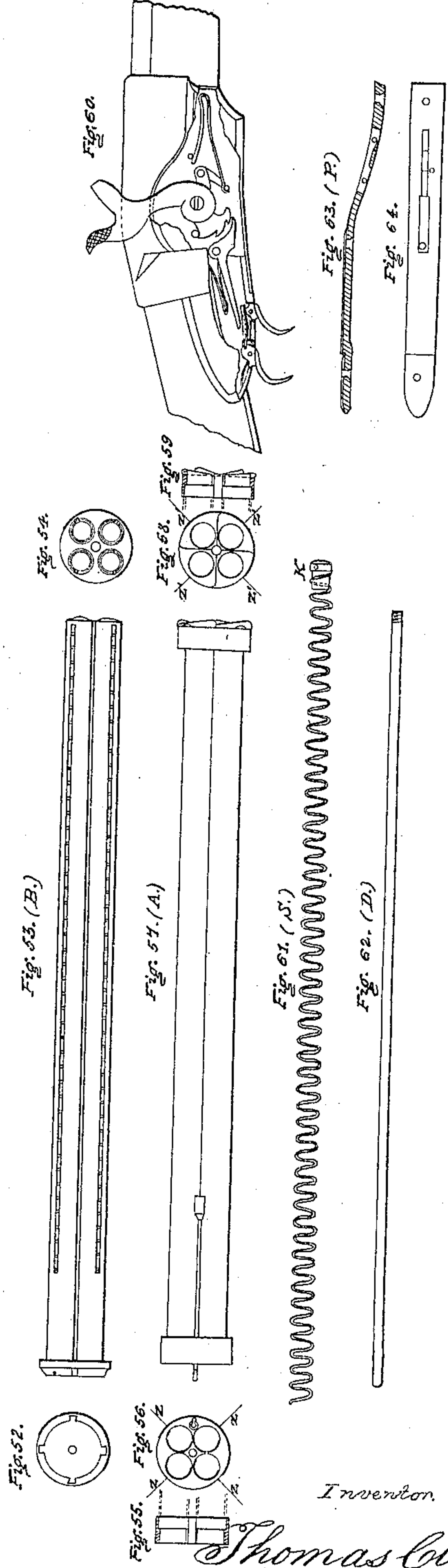
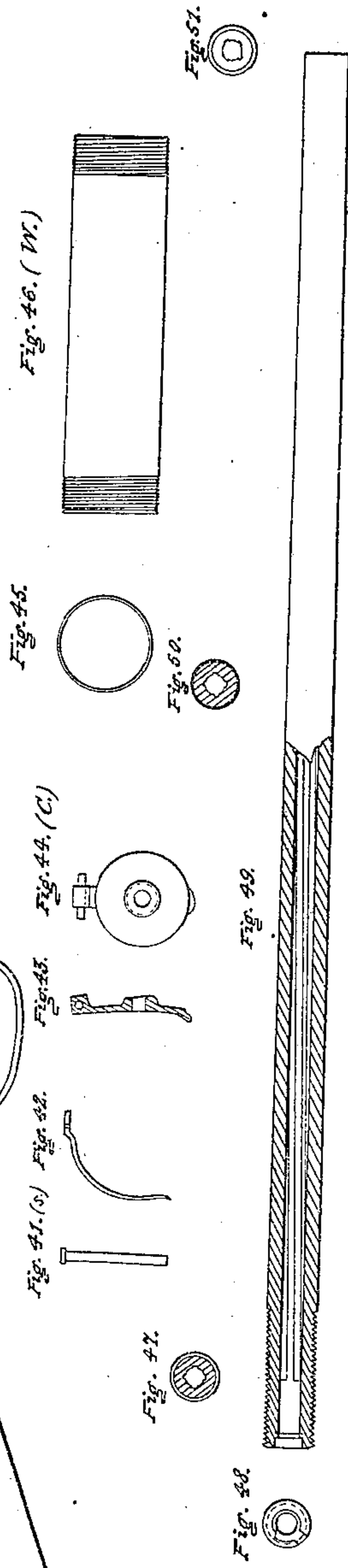
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 Thomas Cullen



# United States Patent Office.

THOMAS CULLEN, OF SAN FRANCISCO, CALIFORNIA.

Letters Patent No. 88,853, dated April 13, 1869.

## IMPROVEMENT IN MAGAZINE FIRE-ARMS.

The Schedule referred to in these Letters Patent and making part of the same.

To all to whom it may concern :

Be it known that I, THOMAS CULLEN, of the city and county of San Francisco, State of California, one of the United States, have invented a new and improved Rifle, involving some improvements upon the construction and means and mode of using the rifles at present in service, the particulars of which are sub-joined.

The accompanying drawings will be found sufficient to explain the working of this, my rifle, with all the parts which I claim as improvements upon the rifles now in use.

My rifle contains a four-cylinder piece, B, each of the cylinders of which fits into those of an outer similar piece, A, extending between the heel-plate and breech, and revolving on a fixed pin, D. These cylinders hold the cartridges, forty (40) in number for the rifle, and supply it as required by the aid of the spiral springs S, contained in each of the inner cylinders, and the arrangement of the handle H, which is made to move the breech-lock and hand h, thereby causing the joint revolution of A and B.

Also, an extractor and cap, r, all one solid piece, made movable by the pin d on the handle H, catching the projections e and f, causing the arm m to move in the vertical slot of the sliding bar E, whilst by so doing, it forces the sliding bar E, (of which the extractor and cap form a part) forwards, and consequently charges the rifle with a fresh cartridge, and on the return of the handle backwards, extracts the copper casing unfit for further use.

Also, a solid plug, T, forming one piece with the slide-carrier or breech-block, that supplies the cartridges for the rifle from the cylinders of the joint revolving pieces A and B, and which is made to stand firmly in between the aforementioned cap r, and the metal of the breech at the stock-end.

My invention is called and designated by me, "Cullen's improved repeating magazine rifle," and is made in a manner usual in the manufacture of such rifles, adapting the various parts to the improvements and changes hereinbefore stated, and that the same may be more fully understood in its construction and use, it is described with reference to the drawings that accompany these specifications, as follows :

### Explanation of the Figures in the Drawings.

Figure 1 represents the heel-plate or but-end view of the rifle.

Figure 2 represents the longitudinal vertical section through the rifle from the heel-plate to a portion of the breech of the barrel, showing the cylinders of A and B fitted with their complement of cartridges, one of which has already been pressed into the sliding car-

rier, as well as the works of the box-shaped place beneath the barrel, for the purpose of charging the piece on the repeating principle.

Figure 3 represents a portion of the same section as in fig. 2, wherein the handle H having moved by means of its key b, the arm of the lever L has jumped the sliding carrier nearly half way up to its highest point of ascent, where it rests whilst the pin d acts on the lower projection of the extractor-arm, m, (see fig. 34,) and forces this extractor r to whirl out the old copper casing of cartridge, (see dotted lines,) and also by this time the hand h has revolved A and B nearly one-half of the required turn.

Figure 4 represents a portion of the section of fig. 2, wherein the handle H is pulled down to its full extent, and a cartridge put on a level with the bore of the barrel, by the action of the key a on the arm of the lever L, thus jumping the slide-carrier to its highest point, A and B have also been turned round a full quarter turn, thus presenting below a fresh cylinder of cartridges.

Figure 5 represents a portion of the section of fig. 2, wherein the handle H is now on its way back, (the state of the slide-carrier being that of a fixture, by means of a spring to be hereinafter described,) the pin d making the rammer and extractor r ram the cartridge into the barrel of the rifle, previous to the key c catching the arm of the lever L, and forcing the slide-carrier to its original position.

Figure 6 represents the section of the wrist W at that particular point, without any of the surrounding portions exhibiting the double pieces A and B containing the supply of cartridges.

Figure 7 represents the transverse section through the rifle at that particular point, with the walls that enclose the slide-carrier in part continued.

Figure 8 represents the side view of the little hand h, and spring x, which as seen in fig. 22, belong to the slide-carrier, the hand h being used for moving in the ridges of the revolving piece A provided on the face, and thus revolving it in the ascent of the said slide-carrier.

Figure 9 represents the end view of the hand h with spring x.

Figures 10 and 11 represent respectively the top and side view of the catch, or bolt v, employed for holding the revolving piece A at equidistant points in its revolution.

Figure 12 represents the top view of the rifle as far as the longitudinal section of fig. 2 extends.

Figures 13 and 14 represent respectively the side and front views of cartridge.

Figure 15 represents the side view of breech-piece with cover G taken off, and a portion at the bottom broken away to show where the hand h runs up.



Figure 16 represents bottom view of breech-piece with cover off.

Figure 17 represents cover-plate G.

Figure 18, cover-plate Q, which slides off on the other side of breech-piece, for the purpose of adjusting the sliding bar E.

Figure 19 represents the section of breech-piece through V V.

Figure 20 represents front view of breech-piece, (looking from heel-plate.)

Figures 21, 22, and 23, represent respectively the end, side, and "far side," (or turned round) views of the slide-carrier, and in section figs. 2, 3, 4, and 5.

Figures 24 and 25 represent respectively the front and side views of the spring *i*, employed for holding the slide-carrier during the backward movement of the handle H.

Figures 26 and 27 represent the side and end views of the handle H.

Figures 28 and 29 represent the side and front views of the spring *w* and cross-head piece *t*, placed in the same position as required for use in the rifle.

Figures 30 and 31 represent respectively the side and top views of the cross-head piece *t*.

Figures 32 and 33 represent respectively the front and end views of lever-arm L, and knuckle-joint attached beneath to the slide-carrier, (figs. 2, 3, 4, 5.)

Figures 34 and 35 represent respectively the side and end views of the extractor-arm *m*.

Figures 36 and 37 represent respectively the front and side views of sliding bar E and extractor and rammer *r*, which all form one solid piece.

Figures 38 and 39 represent respectively the front and side views of the striker Y.

Figure 40 represents the longitudinal or side view of rifle, the rifle-barrel being broken in its length.

Figures 41 and 42 represent respectively the end and side views of the spring *s*, which acts on the cap C.

Figures 43 and 44 represent respectively the sectional and end views of cap C belonging to the heel-plate.

Figures 45 and 46 represent respectively the end and side views of the wrist-cylinder of steel W, which is represented in figs. 12 and 40, covered with embossed leather.

Figure 47, section of barrel of rifle, representing the commencement of the rifling.

Figure 48 represents the front view of barrel.

Figure 49, longitudinal view of barrel with part in section.

Figure 50 represents the section of barrel at that particular point.

Figure 51 represents end view of same, thus showing the rifling to be on the "increased twist" principle.

Figures 52, 53, and 54, represent respectively the front, side, and end views of the inner revolving piece B of four cylinders, each fitted with its spiral spring S.

Figures 55, 56, 57, and 58, represent respectively the section through Z Z, front, side, and end views of the outer revolving piece A, which turns on the fixed pin D, and into which B fits.

Figure 59 represents the sectional view through Z' Z' of the metallic head of the revolving piece A, on the face of which the ridges for the hand *h* to act upon are cut.

Figure 60 represents the lock as seen in its proper position on the rifle, the outer plate being supposed broken to exhibit the planning of the works in the space.

Figure 61 represents one of the spiral springs S, belonging to each of the four cylinders of B, together with the head K.

Figure 62, the fixed pin D, on which A and B in conjunction revolve.

Figures 63 and 64 represent respectively the section and top views of the trigger-plate P.

### Explanation of Parts.

In giving a description or explanation of the various parts composing or constituting my improved rifle, I will proceed to commence at the heel-plate, advancing therefrom to the barrel, so as to include all the working portions which are in any way different in construction to those at present in use, as well as my improvements, which constitute the principal feature in the arrangement.

The heel-plate, then, is somewhat of ordinary shape, with a hole drilled through, on which a cap, C, is fitted, working on a hinge, (see figs. 2, drawing 1, and 43, 44, drawing 2,) made to cover this hole, opening and closing with the aid of the spring S, (figs. 2, drawing 1, and 41, 42,) so as to clasp instantaneously on opening and shutting.

This hole, or opening is made to admit of the (in this case) double pieces, containing four cylinders, an outer one, A, (see figs. 2, drawing 1, and 55, 56, 57, 58, and 59, drawing 2,) moving on a fixed pin, D, and an inner one, B, (fig. 2, drawing 1, and figs. 52, 53, and 54, drawing 2,) made so that although in one compact piece, (being joined together at the part next to the heel-plate,) each of its four cylinders slides easily into and fits closely to each of the four of A, which revolve on D.

These cylinders extend very nearly the entire length of the stock of the rifle, as shown in section in fig. 2.

The inner piece B contains in each of its four cylinders, a spiral spring, S, (see figs. 2 and 61, also 53,) the head-piece of which, K, has a little button, or screw-head on one side, sliding in a slot, or groove cut into the cylinder, to the extent to which the spring S is allowed to move, this being near the termination of the cylinder itself.

This spiral spring, however, is capable, as shown in fig. 61, of stretching a greater length than that of the cylinder itself.

The outer piece A, which is made to revolve, carries the inner one along with it, and consists simply of four cylinders fitted so as to touch one another as closely as possible.

A hole is drilled through the ends, which are metallic heads, holding these cylinders together, so that the whole piece can revolve symmetrically on the fixed pin D. (See figs. 2 and 62.)

The outer revolving piece A has its four cylinders open at both ends, the inner one, B, at the end next to the breech-portion of the rifle only, the heel-plate end being fitted with the spiral springs.

The heel-plate is prolonged into straps of steel or iron, which terminate in a ring, R, (fig. 2, drawing 1, and figs. 12 and 40.)

In this ring are turned threads for the steel wrist, W, (fig. 1, drawing 1, and figs. 45 and 46, drawing 2,) to screw into.

The wood portion of the stock is split in halves, and let in on each side to the straps aforementioned, and fastened together by screws run in at convenient places, (fig. 2, drawing 1,) to bind all firmly.

The wrist W referred to consists of a steel cylinder, about one thirty-second of an inch in thickness, and made large enough just to allow the metallic end F to fit into it, and revolve. It is fastened at the breech-end by being screwed into it in a similar manner to that of the stock-end, and thus becomes securely attached to the solid breech portion.

The exterior is also covered with stamped leather, as shown in fig. 12, drawing 1, and fig. 40, drawing 2, so as at once to form an ornament and a useful appendage to the rifle itself, when handled by a marksman.

Beneath, the trigger-plate, P, is screwed to this ring of metal of the stock, and also to the wrist-cylinder, by a single screw running through both, and is joined



on to the breech-piece, as seen in section of fig. 2, drawing 1.

The outer revolving piece is here, by means of this wrist W, kept in its place, for, having a thick rim at the breech-end of the stock (figs. 2, 3, 4, and 5,) turned on, for the purpose of allowing the parts (hereinafter described) to revolve it as required, and which being caught between the end of the wrist and the metal of the breech portion, as in section fig. 2, drawing 1, can be adjusted to its proper position.

The spring K, fixed (figs. 56 and 57, drawing 2,) on the outside of the outer piece A, effectually secures the inner four-cylinder piece B in its right place, four square holes being cut into the metallic end of B, so as to admit of A and B being fastened together in whatever manner the cylinders of B may be slid into those of A.

The breech is supposed to be a solid piece of metal, drilled, turned, and slotted out for the portions required to be fastened or fitted in. (See figs. 2, 15, 16, 19, and 20, drawing 1.)

A slot is cut into it to allow of the sliding carrier and plug T, which, being all in one piece, may, for briefness, be called slide-carrier, (figs. 2, 3, 4, 5, and 21, 22, and 23,) working up and down, and is at right angles to the direction of the length of the barrel. A portion is turned out to admit, of the wrist being screwed in, the end of this drilling presenting a flat smooth surface to the cartridges, which will rub against it when the inner four cylinders have received their complement, and is consequently to be made at right angles to the direction of their length, but from the aperture O. (See fig. 20, drawing 1.) Also, this surface has circular cuttings made in the direction the heads of the cartridges are supposed to be carried during the revolution of A and B, so as to allow the gradual compression back again of the cartridges, to meet this surface, and the slotting and drilling aforementioned meet at the bottom, as represented in figs. 2, 3, 4, 5, and 19.

The sliding carrier, figs. 21, 22, 23, and in section in figs. 2, 3, 4, and 5, is supposed to be a solid piece of metal, having holes, M and M', drilled through its length, and a portion below ground out, leaving two walls and a side or end, which end is left to prevent, in its ascent, any cartridges from escaping.

The lump T reserved at the top answers the purpose of a plug, and is made use of to effectually close the barrel, by holding the cap, or rammer r, figs. 36, 37, and 2, 3, 4, and 5, (so called, because it rams the cartridges into the bore of the barrel,) firmly fixed within the barrel.

The carrier portion, or drilling M, that receives the cartridges in succession from the cylinders within the stock, has a slot, l, cut right through, to allow of the cap and extractor sliding along its length, and M is provided with a spring, n, and a lump, o, to aid in ejecting the old copper casing, and through the walls aforementioned runs the screw, binding it to the knuckle-joint of the lever L.

On one side is the little hand h, figs. 8 and 9, drawing 1, the end of curved portion of which, z, running upward with the slide-carrier, moves in the ridges seen in fig. 58 of revolving piece A, producing a full quarter of a revolution on every ascent, whilst the shoulder y is made to follow the direction of the face of A, as shown in dotted lines in fig. 15, being pressed continually into this direction by the spring x, and on the termination of each one-quarter revolution, which presents a fresh cylinder of cartridges, the catch, or bolt v (see figs. 10, 11, 2, 3, 4, and 5, drawing 1,) prevents any accidental motion backward or forward, by sinking into the equidistant notches on the rim of A, made for it, till the next descent of the handle H, (figs. 26, 27, 2, 3, 4, 5, and 40,) frees it.

The metal of the breech-piece, past the slide-carrier,

has a hole drilled through at the top, with threads cut, to admit of the barrel screwing into it, and at the bottom a box-shaped place ground out beneath the barrel, for the machinery required to work the slide-carrier and surroundings. (See figs. 2, 3, 4, 5, and 15, drawing 1, and 40, drawing 2.) This is provided with a cover, G, fig. 17, over which the works of the lock are placed, figs. 40 and 60, drawing 2.

The works or machinery contained in this box consist of the head of the handle H, as shown in figs. 2, 3, 4, and 5, on which are three keys, or lumps a, b, and c, and a pin, d, the whole moving on one of the screw-pins which fasten the plate G, as represented.

The three keys, a, b, and c, for moving or jumping up the slide-carrier, and pressing it down again, form a portion of the handle.

The other pin, d, for moving the extractor and rammer r, attached to the sliding bar E, forms part of a slip, which is let into the face of the handle H on the other side, the same screw-pin passing through it.

The key c is so placed as to catch the arm of the lever L from below, and the key b is so placed as to catch this arm in its descent, and the key a to also catch it inwards, as shown in figs. 2, 3, 4, and 5.

This lever L is attached to the slide-carrier by its knuckle-joint, and the pin d is so placed that after the key b has jumped the slide-carrier up to the position represented in fig. 3, or about half way up, it forces the arm m to move the sliding bar E, to which is attached, in one piece, the extractor and rammer-cap r, the pin on which this arm m moves forming a part of it, and the lumps f and e are so placed as to make the extractor and cap move backward and forward, according as the handle descends and ascends, without in any way interfering with the slide-carrier, so that when the extractor is moving, the slide-carrier is at rest, but no part of the motion of the handle in its descent is thrown away, either one or other of these parts doing duty.

The spring i, (see figs. 24 and 25, drawing 1,) which is let into the niche p p, fig. 15, drawing 1, is made use of to prevent the falling of the slide-carrier, by sinking into a small indentation on its surface provided for it, until such time that the key c can act upon it, and pull the slide-carrier down, and the handle H is itself regulated by the spring w and cross-head piece t, as seen in figs. 2, 3, 4, and 5, of drawing 1.

The sliding bar E moves in the portion of metal left for it on one side of the barrel, and also in the wood-work beneath, and is made to take the direction of the slot g, by running on the fixed pin u, (see dotted lines, fig. 15, drawing 1,) and is also firmly pressed by the small spiral spring let into a hole just above this pin u.

The plate (fig. 18, drawing 1,) slides off on the further side of the breech-piece, as represented in the section, fig. 19, drawing 1, by Q-j j j j, and is so provided for the adjustment and examination of E.

A recess, l, is left (see figs. 2, 3, 4, 5, and 19, drawing 1,) for the rammer-cap r to fit into, whilst the slide-carrier is moving upward.

Provision is made for the old copper casing of the cartridge being thrown out by having a slot cut on one side of the breech-piece the full length of the slide-carrier, as shown in figs. 3 and 19, drawing 1.

The lock is simply that of a double set-trigger pattern, (fig. 60, drawing 2,) and the striker Y extends so that on the ascent of the slide-carrier, the hammer is placed at half-cock, fig. 12, drawing 1.

#### *Description of the Working of the Whole.*

The cap C (figs. 2, 43, and 44,) is pressed, and flies open. The spring K (figs. 56 and 57) is next bent back. This allows of the inner piece of four cylinders B being extracted, and the cartridges, to the number of forty, (40) in this case (10 for each compartment) being dropped into the outer piece A, figs. 55, 56, 57, 58. The inner piece, B, (figs. 52, 53, 54,) is then re-



placed, and there fastened by the spring K, so as to be held tightly in position till again withdrawn, and during the entrance of B into A each of the spiral springs, S, is compressed by the cartridges within A. The cap C is then shut, and a cartridge will now be found to have made its way into the slide-carrier, through the aperture *o*, by reason of the pressure of the lowermost spiral spring within its cylinder. Let the handle H now be pulled gradually downward, the key *b* (figs. 2, 3, 4, 5, and 26,) will then act on the arm of the lever L, and jump up the slide-carrier to the position shown in fig. 3, drawing 1, and after it has arrived there no further motion will be imparted to it till the key *a* catches the other portion of the arm of L, but whilst the end of this arm is being rubbed against by the curved portion, (centred on the screw-pin,) between the keys *a* and *b*, and not in any way moved, the pin *d* catches the lump *f* on the arm *m*, (see figs. 34, 2, 3, 4, and 5,) and makes the sliding bar E and rammer-cap extractor *r* all travel together, till the rammer occupies the recess *l*, provided for it, figs. 19, 2, 3, 4, 5, the motion being produced by the pin of the arm *m*, at its uppermost extremity, running through the vertical slot in the sliding bar E.

After this, the key *a* catches the arm of L, and jumps up the carrier to its full extent, so that the slide-carrier presents its cartridge in a line with the bore of the barrel of the rifle, fig. 4, drawing 1, whilst, at the same time, the bottom left-hand portion of the slide-carrier keeps the cartridges from forcing their way out.

The handle H has now finished its descent, fig. 5, drawing 1, the cross-head piece having been pressed into the lowermost niche.

In the backward motion of H, the first thing put in motion is the rammer and extractor *r*, although this does not immediately take place on the return of the handle until the pin *d*, in its upward movement, strikes on the other lump, *e*, of the arm *m*, thus driving the cartridge well home into the barrel, whilst the rammer and extractor *r*, in remaining here, assume their new function of "cap" and extractor, the sliding carrier in the meanwhile being prevented from falling by means of the spring *i* (figs. 24 and 25) catching it, till relieved by the handle.

On the further upward movement of the handle H, the lump *c* catches the arm of L from below, and forces it to run up to its original position, and by so doing bring down the slide-carrier to its former place, as in fig. 2, drawing 1, and have the solid plug T in the rear of the cap *r*, the spring *w* and cross-head piece *b* throughout doing duty on the back and recesses in the

handle, so as to hold and firmly press it in its respective positions and movements.

The rifle is now loaded, but whilst these portions have been at work, other parts have also contributed their share.

The hand *h*, attached to the slide-carrier, as represented in figs. 21, 22, and 23, drawing 1, moving in the slot prepared for it, figs. 15 and 20, drawing 1, into which it is pressed by the spring *x*, has relieved the revolving piece A of the catch *v*, by its pressure upward, (see in section fig. 3, drawing 1,) and, on proceeding further, has revolved this same cylinder piece A, one-quarter of a full turn, when the catch *v* again came into operation, and secured it in its place, figs. 4 and 5, so that on the descent of the slide-carrier a fresh cylinder of cartridges is presented to it, and one of them again forced into the receptacle M, prepared to receive it, and the hammer has been raised to half-cock, so that all that is now required is to discharge the piece, by pulling the trigger, and making the hammer fall on the striker sliding piece Y, and explode the cartridge.

Suppose the piece to be now discharged. In loading again, by depressing the handle H, the slide-carrier, as before, is jumped up, as in figs. 3, 4, and 5, but now the extractor in fig. 3, drawing 1, draws forth the old copper casing (as shown in dotted lines) of the exploded cartridge, sending it whirling out, by aid of the spring *n* and lump *o*, which it strikes on, fig. 23, drawing 1, and by completing the motion of the handle downward, and returning the same, the rifle will be found again charged, and ready for use, as before.

The rifle has as yet been described as a forty (40) cartridge repeating piece, but this number can be increased to forty-two, (42,) by allowing one to enter the barrel, and another the slide-carrier, whilst those in the cylinders are kept up to their usual complement of forty (40.)

What I claim as my invention, and for which I desire to obtain the Letters Patent of the United States, is—

1. The revolving magazine B, in combination with the outer cylinder A, all constructed and operating substantially as and for the purpose set forth.

2. The slide E, with the cap *r*, slots *s s*, *g*, and finger *t*, in combination with the pin *d*, and the extractor arm *c f*, when constructed substantially as and operating in the manner and for the purposes described.

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