

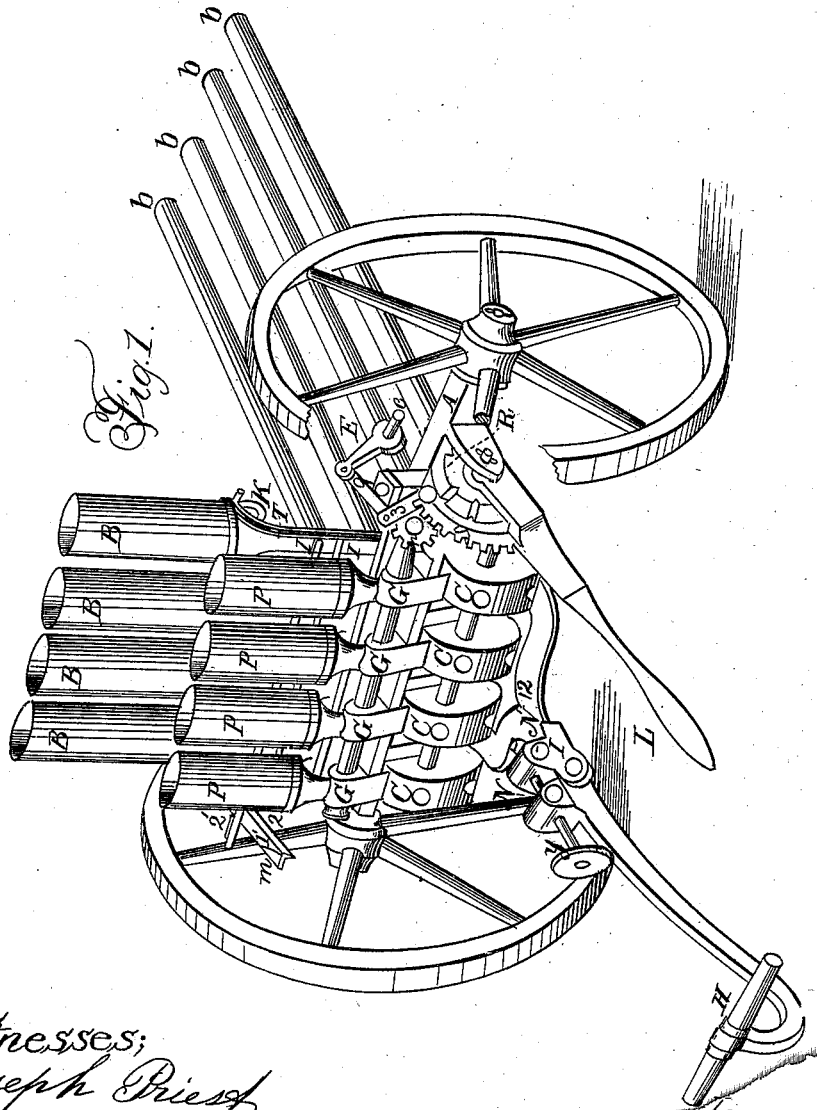
J. O. WHITCOMB.

4 Sheets—Sheet 1.

Machine Gun.

No. 38,350.

Patented Apr. 28, 1863.



Witnesses;  
Joseph Priest  
W. M. Bonmar

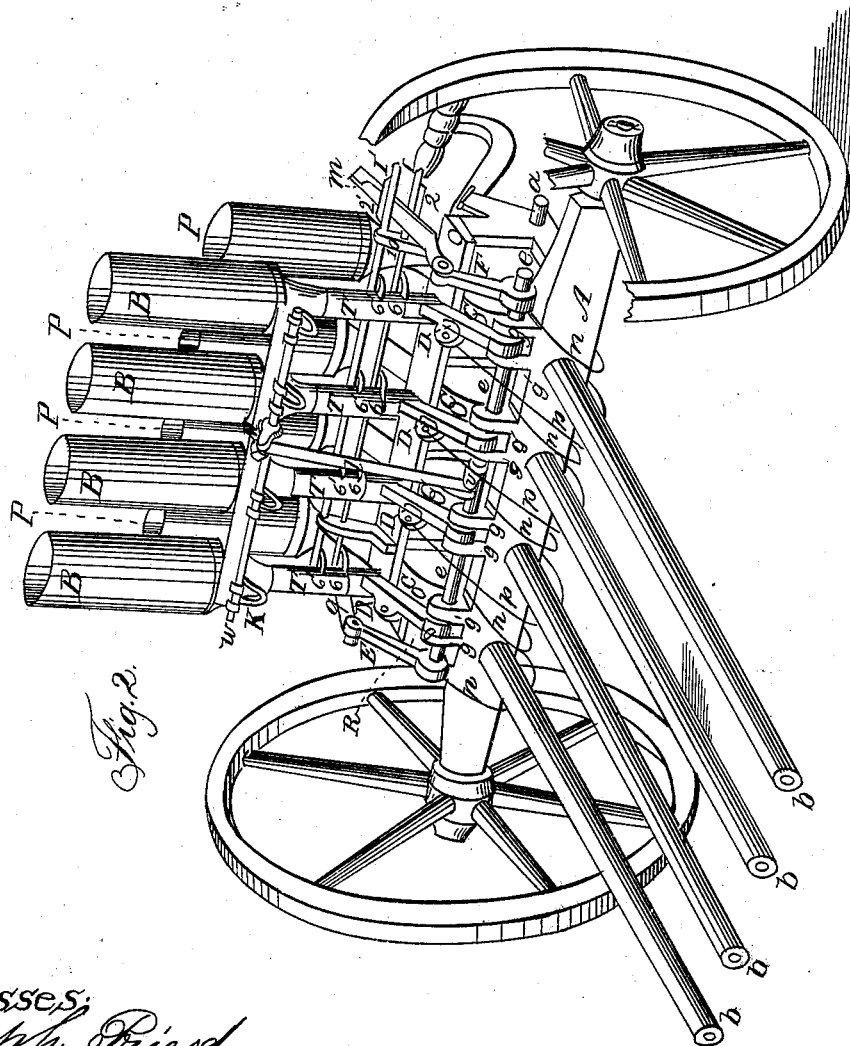
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*Fig. 2.*

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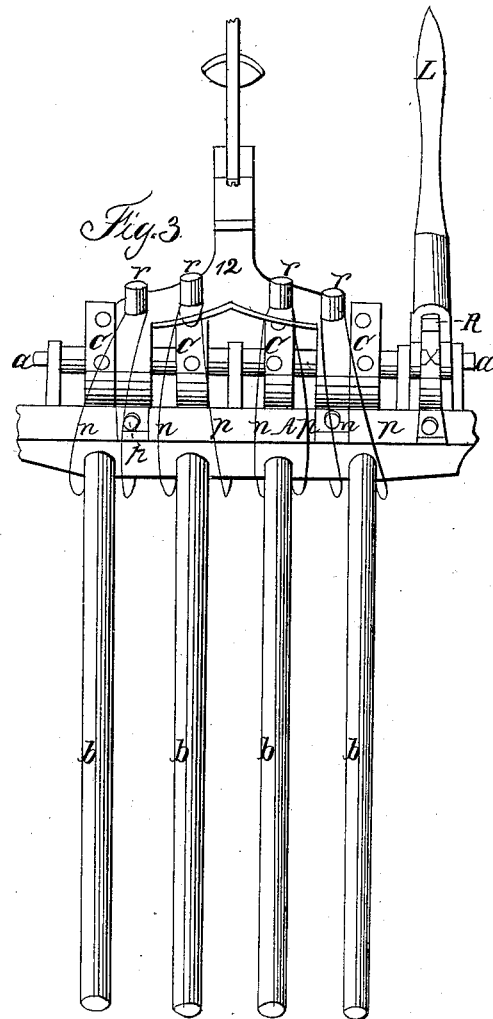
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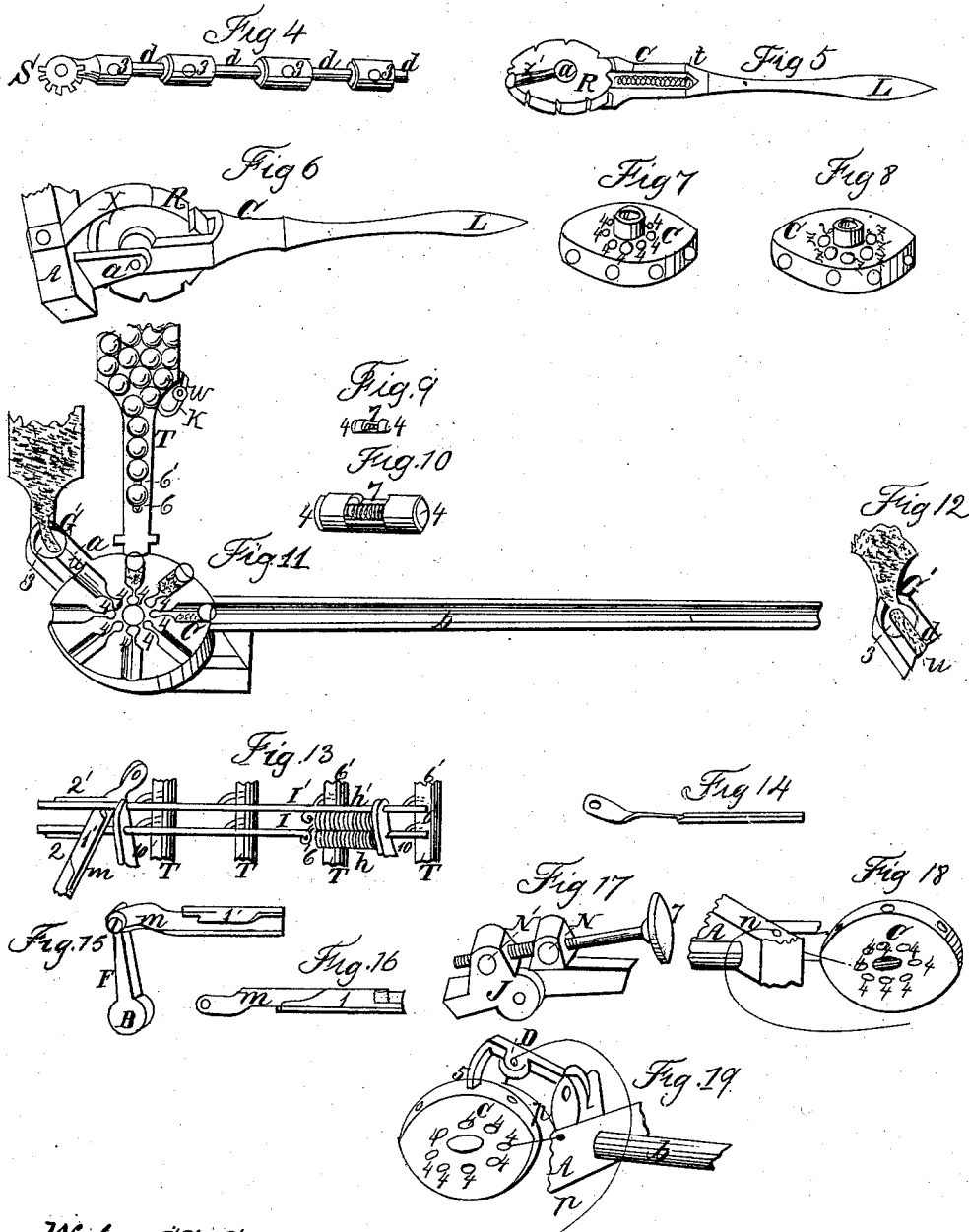
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# UNITED STATES PATENT OFFICE.

JAMES O. WHITCOMB, OF NEW YORK, N. Y.

## IMPROVEMENT IN MAGAZINE FIELD-BATTERIES.

Specification forming part of Letters Patent No. 38,350, dated April 28, 1863.

*To all whom it may concern:*

Be it known that I, JAMES O. WHITCOMB, of the city, county, and State of New York, have invented a new and useful Improvement in Portable Field-Batteries; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the drawings hereto annexed, wherein like letters and figures refer to like parts, and making a part of this specification.

Figure 1 is a rear view of the battery when mounted on its wheels. Fig. 2 is a front view of the battery, also mounted on its wheels. Fig. 3 is the under side of the same; and Figs. 4 to 19, inclusive, are sections and detached part of the battery, so represented and to be hereinafter described as to enable persons skilled in the art to understand, make, and use my invention.

In the drawings, Figs. 1, 2, and 3, *b b b b* are the barrels, of any desired length, either smooth-bored or rifled, passing through and firmly secured near the breech to the axle or beam A.

Immediately in the rear of the breech of the barrels, and closely fitted thereto, are the cylinders or rotating chamber-blocks C C C C, each having an equal number of chambers equidistant from each other, as shown in Fig. 11. One chamber in each block being in line with the bore of the barrels *b b b b*, Fig. 1, all the chambers will be so in line when in their rotation they arrive at the proper positions, and all are thus fixed to the common axis or shaft *a*, together with the ratchet R, and the whole properly fitted in the frame-work of the apparatus, so that all will rotate at the same time. The ratchet R is made to rotate by means of the lever L, which works loosely on the shaft *a*. Said shaft *a* should be in the same plane with the bore of the barrels *b b b b*.

The end of the lever L through which the shaft *a* passes is in the form shown in Figs. 3 and 6, having an equal bearing on either side of the ratchet R.

In Figs. 3 and 6 the spring X is of such length that when the chambers in the blocks C C C C are in line with the bore of the barrels *b b b b* said spring will just fit into one of the notches of the ratchet R, the notches being so divided on the ratchet that whenever the chambers coincide with the bore of the barrels the spring X will fit into its appropriate notch. Inside of the enlarged part *c* of the lever L,

Figs. 5 and 6, is nicely fitted the click *c*, Fig. 5. In Fig. 5 the upper portion of the lever and ratchet are cut away, showing the construction therein and the manner in which the click *c* is forced into one of the notches of the ratchets by the spiral spring *t*.

The notches of the ratchet R and the end of the click *c* should be in shape like that shown in Fig. 5, so that when in the position of Figs. 5 and 6 (which for convenience of representing is here inverted) by moving the lever upward the spring X, Figs. 3 and 6, holds the ratchet in its place, while the click *c*, Fig. 5, will slide into the lever, and the end will slip over the surface of the ratchet to another notch, and by the force of the spiral spring *t* will slide out of the lever into that notch, and when the lever is brought back to its original position will turn the ratchet enough for the spring X to fit into the approaching notch.

In Figs. 1 and 2, P P P P are the receivers to be filled with gunpowder, of sufficient capacity to contain about one hundred charges each. Underneath the receiver, and to which the same are united, are the sockets G G G G, Fig. 1. Within these sockets, and formed of one piece, turning upon a common axis, the series of cylinders *d d d d*, Fig. 4, are fitted to turn easily. Into these cylinders are made the cavities or chargers 3 3 3 3, of proper capacity to contain a suitable charge of gunpowder. A section of one of these cylinders and cavities may be seen at G, Figs. 11 and 12, showing the way in which it is fitted into the socket.

Through the upper part of the socket G, and coincident with the cavity 3, Fig. 11, a passage is made into the receiver above, allowing the gunpowder to fall down into and fill the cavity, as shown. A similar passage, *u*, is made through the lower part of the socket G, where the socket extends downward nearly in contact with the chamber-block C, as shown in Fig. 11, thus depositing the proper charge of gunpowder into the chamber below whenever the cavity is inverted, as at 3, Fig. 12. At the end of this series of chargers, and concentric with its axis, is fixed the toothed segment S, Figs. 1 and 2, the teeth of which work into the teeth of the larger segment S', Fig. 1. The larger segment S', Fig. 1, is firmly fixed to the lever L, and is concentric with the fulcrum or axis of motion of said lever.

B B B B, Figs. 1 and 2, are the bullet-holders, of sufficient capacity to hold about one hundred bullets or balls each. The bullet-

holders gradually terminate in and are supported below by the small tubes T T T T, whose inside diameter is a little greater than the diameter of the bullets to be used and of nearly twice the length, sufficient to contain four or five bullets below the bullet-holders. Said tubes so supporting the bullet-holders are fixed to the frame-work of the apparatus, as shown in Fig. 2, and are coincident with the chambers in the chamber-blocks below, that are at right angles to the chambers that are in line with the barrels when the spring X, Fig. 3, fits into one of the notches in the ratchet R.

On the top of the beam A, Fig. 2, are made bearings *g g g g*, through which the shaft *e* passes. To this shaft is securely fixed the bullet pressers or arms D D D D, in shape as shown in Fig. 19, and of such length that the end 5 of each will just meet the chambers that are coincident with the tubes T T T T, Fig. 2, when the spring X, Figs. 3 and 6, is in one of the notches of the ratchet R. On each end of the shaft *e* are also securely fixed the arms E and F, as seen in Fig. 2. The tubes T T T T, near the frame-work, are cut away to allow the ends of the bullet-pressers to pass down onto the bullets in the chambers below, as shown in Fig. 2. The arm E, Figs. 1 and 2, is connected by the pitman 9 to the arm *o*. Said arm *o* is a part of the lever L. It will thus be seen that when motion is given to the lever L the same motion will be communicated to the arms E, D D D D, and F.

To the arm F is connected the sliding bar *m*, Figs. 1, 2, 13, 14, 15, and 16. On each side of this sliding bar *m*, but in reversed positions, are attached the wedge-shaped pieces 1' 1, in shape and positions, respectively, as shown in Figs. 15 and 16.

In Fig. 13 are seen portions of the tubes T T T T; but attention is called more particularly to the rods I' I, provided with the springs 2' 2, one end of each of which springs is fastened to the rods I' I. The other ends of these springs pass through the rods I' I—one from above and the other from below—forming studs, against which the wedge-shaped pieces 1' 1 work when the sliding bar *m* is made to slide between the rods I' I. These rods are also provided respectively with the check-wires 6' 6' 6' and 6 6 6 6, which pass about midway into the tubes T T T T, apart from each other, of about the diameter of the bullets used. The ends of these check-wires are shown at 6' 6, Fig. 11—one above and the other below the lowermost bullet. The purpose of these check-wires is to prevent the bullets falling down into the chambers only as they are required.

In Fig. 13, *h h* are spiral springs, one end of each of which is fastened to the rods I' I, and the other ends of each are fastened to the support 10, as shown in Fig. 13.

In front of the bullet-holders, and at the point where the same begin to terminate in the small tubes T T T T, Fig. 2, is seen the shaft W, fitted in suitable bearings, and provided with the relieving-wires *k k k k*, of the shape seen at

*k*, Fig. 11. Said wires work through small holes in the bullet-holders, in such a manner as to prevent the bullets clogging up the passage, into the small tubes T T T T below. Motion is communicated to this shaft W by the pitman *l*, connected at one end to the short arm *o*, fixed to the shaft *e*, and the other end of said pitman *l* is connected to the short arm M, fixed to the shaft W.

Figs. 7 and 8 represent two of the chamber-blocks when detached from the apparatus, one, Fig. 7, showing the insulated igniting devices 4 4 4 4 4 4 4 4, fixed therein a little distance beyond the bottom of the chambers, to which communication is made by a small hole through the bottom of the chambers to the igniting devices, as shown at 4 4 4 4 4 4 4 4, Fig. 11. Fig. 8 is the same with the igniting devices taken out, one of which devices is seen at Fig. 9, and the same enlarged in Fig. 10, and are constructed as follows: Cylinders of ivory or other good insulating substances, of suitable size to fit closely in the apertures Z Z Z Z Z Z Z Z, Fig. 8, and in length about the thickness of the chamber-blocks, are pierced through their centers from end to end, large enough to admit at the ends of the requisite conductors 4 4, Figs. 9 and 10. Said conductors must be in size sufficient to convey the necessary volume of galvanic or voltaic electricity. At the middle the cylinders are cut half away, as shown in Figs. 9 and 10. A fine platina wire, which may be either straight or spiral, is soldered or otherwise perfectly connected at its two ends to the inner ends of the conductors 4 4.

Figs. 18 and 19 are sections of the apparatus, showing how the conductors 4 4 4 4 4 4 4 4 on either side of the chamber-blocks may be put in connection with the positive and negative poles of a galvanic or voltaic battery whenever the chambers are in line with the barrels by means of the wire *n*, coming from the negative side of the battery, passing through the beam A, Fig. 18, at *n*, where it is insulated, and also by means of the wire *p*, coming from the positive side of said battery, passing a little distance through the little projection on the bullet-presser D, Fig. 19, where it is insulated, and, coming in contact with the short wire *p'* whenever the bullet-presser is brought down, said wire *p'*, passing through the beam A, where it is insulated the same as the wire at *n*, Fig. 18, returns and comes in contact with the conductors 4, as shown in Fig. 19.

In Figs. 1 and 3, 12 is the frame-work fastened to the under side of the beam A, to which frame-work the handle H is substantially connected by the strong joint J. In the thick part of the frame-work 12, near the joint J, is truly fitted the nut N', and in the thick part of the handle H, near said joint J, is also truly fitted the nut N. In one of the nuts a left-hand screw is cut and in the other a right-hand screw is cut. On the shaft Y is cut a right-hand and a left-hand screw, to properly fit respectively

the screws of the nuts N N', said shaft being provided at the end toward the handle H with a suitable head to turn it. A clearer idea of this contrivance may perhaps be had by examining Fig. 17, showing the same detached from the apparatus, and it should be remembered that the nuts N N and the right-and-left-hand screw Y should have the same position relative to the joint, frame-work, and handle as shown in the drawings above referred to.

Having thus described the construction of my battery, I will now proceed to explain its operation.

The powder-receivers are first filled with gunpowder. The bullet-holders are then filled with bullets. Then, by letting the handle H rest on the ground or other convenient place and turning the right-and-left-hand-screw Y to give the desired elevation to the barrels, the apparatus is ready to be operated; and I will here state that the object attained is to charge rapidly one chamber or series of chambers with powder and bullets while another chamber or series of chambers are being discharged by the igniting devices heretofore described by simply giving the downward and upward motions to the lever L. After said motions have been thus three times given to allow the chambers first so charged to arrive in line with the barrels, the operator, taking hold of the lever, raises it, and the following results are produced: First, the click *c* carries the ratchet R along with it until the spring X springs into the approaching notch of the ratchet, and the chamber-blocks C C C C, being fixed to the same shaft, are also made to turn with the ratchet, while the conductors 4 4' are brought in contact with the positive and negative wires *p'* and *n*; second, the series of chargers *d d d d* will be turned by the toothed segments S and S' in the position seen at G, Fig. 11, and be filled with gunpowder from the receivers above; third, motion being given to the shaft *e* by the arm *o*, pitman *g* and arm E will raise the bullet-pressers, and the sliding bar *m* will also be made to slide forward, forcing the wedge-shaped piece 1 on the under side of the bar against the stud of the spring 2, withdrawing the check-wires 6 6 6 6, which will allow the lowermost bullets in the tubes T T T T to fall into the chambers below, when the wedge-shaped piece 1 will have passed said stud, and the check-wires will be drawn back to their original position by the spiral spring *h*, thereby dropping one bullet at a time into the chambers; fourth, the short arm *v*, giving motion through the pitman *l* and arm M to the shaft W, will force the wires *k k k k* against the bullets into the bullet-holders, and relieve the passage into the tubes T T T T filled with bullets down to the check-wires. The operator, still retaining his hold, will now lower the lever L until the click *c* is forced into the next notch of the ratchet by the spiral spring *t*, when the following additional results will be produced: First, the bullet-pressers will be forced onto the bullets which fall into the chambers, as de-

scribed in the last operation, pressing them home, while the wire *p* will be brought in contact with the wire *p'*, when a current of electricity will instantaneously be conveyed through the fine wire 7, Figs. 9 and 10, heating it to redness, igniting the gunpowder in the chambers, and of course discharging the battery; second, the series of chargers *d d d d* will be turned in an inverted position from what they were placed in the last operation, and, being filled with gunpowder, will deposit the same into the chambers below, as shown at G, Fig. 12; third, the sliding bar *m* will be forced backward, forcing the wedge-shaped piece 1' on the upper side of the bar against the stud of the spring 2', withdrawing the upper check-wires 6' 6' 6' 6', which will allow the bullets in the tubes T T T T above said check-wires to fall onto the lower check-wires, 6 6 6 6, when the wedged-shaped piece 1' will have passed said stud, and the check-wires 6' 6' 6' 6' will be drawn back to their original position by the spiral spring *h'*; fourth, the relieving-wires *k k k k* will be withdrawn from the bullet-holders, and just so often as the lever L is so moved, just so often will the results enumerated be produced, provided the powder-receivers and bullet-holders are supplied with the aforesaid ammunition.

What I claim, and desire to secure by Letters Patent, is—

1. One or more rotating cylinders or chamber-blocks, in combination with the insulated igniting devices for discharging said chambers by electricity when arranged at the breech of the barrels, as herein set forth and represented.

2. The general arrangement and operation of the ratchet R and spring X, with the lever L, click *c*, and spring *t*, when the ratchet R is fixed to the common shaft or axis *a*, with one or more of the rotating cylinders or chamber-blocks, C, as herein set forth and represented.

3. The chargers *d d d d*, working into the sockets G G G G, when used separately or in series, for the purpose herein set forth and represented.

4. The sliding bar *m*, with its two wedge-shaped pieces, 1' 1, working against the studs of the springs 2' 2, in combination respectively with the rods I I, the check-wires 6' 6' 6' 6' and 6 6 6 6, and also with the springs *h' h*, substantially as and for the purpose herein set forth and represented.

5. The bullet-pressers D D D D, carrying the galvanic or voltaic battery-wires *p p p p*, as herein set forth and represented.

6. The relieving-wires *k k k k*, fixed to the shaft W, when made to work into and out of the bullet-holders by motion communicated from the shaft *e* through the arms *v* and M and pitman *l* to said shaft *w*, as herein set forth and represented.

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Witnesses:

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