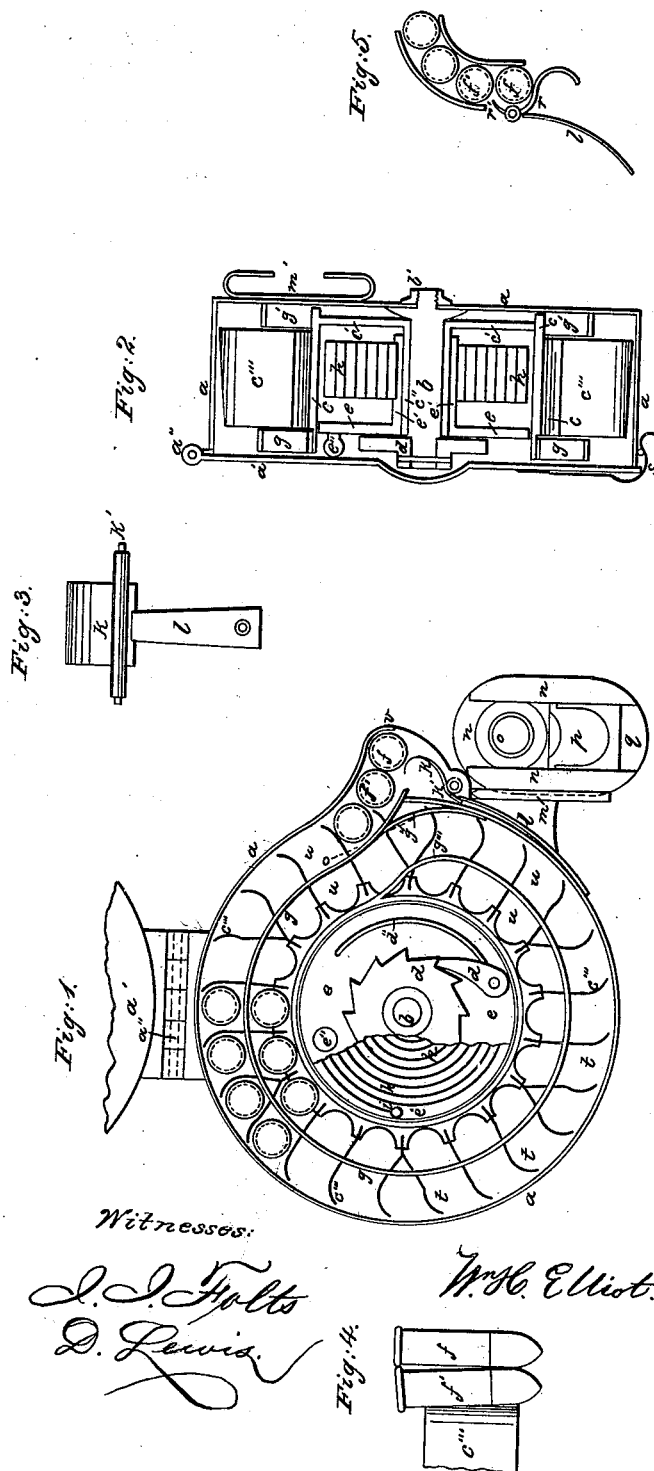


W. H. ELLIOT.

Cartridge Box.

No. 111,827.

Patented Feb 14, 1871.

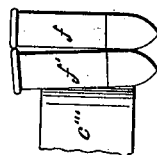


Witnesses:

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Fig. 4.



# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN MAGAZINES FOR BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. 111,827, dated February 14, 1871.

### *To all whom it may concern:*

Be it known that I, WM. H. ELLIOT, of the city, county, and State of New York, have invented a new and Improved Magazine for Fire-Arms; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Similar letters of reference indicate the same devices in all the figures.

To enable others skilled in the arts to comprehend, make, and use my invention, I will proceed to describe its nature, construction, and operation.

The nature of my invention consists in providing the magazine with a series of revolving radial chambers by which all the cartridges in it are brought to its mouth and thrust out, one after the other, in regular order; in the employment of circular divisions or partitions by which the cartridge-space of the magazine is divided into circular or scroll passages, in combination with said radial chambers, which force the cartridges from the center outward and deliver them through the mouth of the magazine; in giving to the radial partitions which divide the cartridge-space into radial chambers a peculiar curve at their outer ends, so that the cartridge shall leave the partition as it passes into the mouth of the magazine by a perfectly regular movement; in cutting the outer end of said radial partition at an angle to suit the taper of the cartridge, so that the cartridge which has left the radial partition shall be held in a vertical position by the cartridge which is still acted upon by the partition; in curving the outer end of the circular passage so that the cartridges cannot pass out at the mouth of the magazine in the same direction in which they come to it; in providing a stop and spring to prevent the cartridges from falling out at the mouth of the magazine until the said stop is depressed by the thumb or finger; in combining with the case of the magazine a slide or joint by which it may be attached to a fire-arm, and with a loop by which it may be attached to and carried upon the belt; in a geometrical arrangement of the partitions of the cartridge-space, whereby the largest possible number of cartridges are contained in a given space, the radial spaces being so constructed that, when filled, the car-

tridges stand in rows arranged radially in relation to the hub of the magazine, around which they revolve, each outer circle containing six more cartridges than the circle next within it; and it consists in several other novel features, as herein set forth.

The object of my invention is to provide for the arm a magazine which shall be detachable so that it may be carried upon the belt, when necessary, and serve the purpose of a cartridge-box; to relieve the arm, when not in use, of the extra weight of a magazine and its contents; to provide for the arm a magazine of much greater capacity than it could have if it were a part of the arm; and, also, to relieve the arm proper of the great complication of parts common in those arms in which the gun and magazine are combined in one piece, so that when used as a single breech-loader it need not necessarily have in it any of the elements of a magazine-gun.

Figure 1 is a front elevation of my improved magazine, with parts broken away to show the mainspring. It also shows a section of my improved breech-loading arm. Fig. 2 is a vertical section of the same. Fig. 3 is an elevation of the stop and spring. Fig. 4 is an elevation of cartridges and the end of one of the radial partitions. Fig. 5 shows a different method of stopping the cartridges in the mouth of the magazine.

*a* is the case of the magazine; *a'*, cover of the same; *a''*, hinge; *b*, stud upon which the central portion of the magazine revolves; *b'*, screw-nut which fastens the stud to case *a*; *c*, hub. This hub has a bottom, *c'*, a central tube, *c''*, fitting the stud *b*, and upon which it revolves, and arms or partitions *c'''*, which divide the cartridge-space into chambers *u u*. *d* is a ratchet fastened permanently to the stud *b*; *d'*, pawl; *d''*, spring of the same; *e*, disk which covers the mainspring. This disk has a central tube, *e'*, which fits over and revolves upon tube *c''*; also a handle, *e''*, which may be made with a joint, so as to fold down out of the way in the usual manner. To this disk the pawl *d'* and spring *d''* are attached. *f* and *f'* are cartridges in the mouth of the magazine; *g*, circular partition which divides the cartridge-space into circular passages *t t*. The inner end of this partition passes around and is supported by the hub. The outer end is attached to the case at *g''*. *g'* is an exactly-similar partition attached

to the bottom of the case;  $g'''$ , offset in partitions  $g$  and  $g'$ ;  $h$ , mainspring attached at its inner end to the tube  $e'$ , and at its outer end to the hub at  $i$ ;  $k$ , stop to prevent the cartridges from passing out at the mouth of the magazine;  $k'$ , pivot, and  $l$  spring, of the same;  $m$ , slide or joint by which the magazine is attached to the arm;  $m'$ , fastening which attaches the magazine to the belt. This slips onto a metallic plate on the belt, and by a spring-catch is prevented from coming off.  $n$  is a section of my improved breech-loading arm patented December 13, 1870;  $o$   $p$   $q$ , chamber, breech-block, and tang of the same;  $r$ , stop which prevents, by means of point  $r'$ , the second cartridge from coming forward while the first is being removed;  $s$ , fastening of the cover  $a''$ ;  $v$ , curve in the plate of the case at the outer end of the passage or mouth of the magazine. The power of the mainspring tends to force the first cartridge against this curve, and it is removed by force applied by the fingers at right angles, or nearly so, to the direction of the force of the mainspring, and to facilitate its removal the case is cut away over the middle of the cartridge. In removing the cartridge the end of the thumb pushes back the stop  $k$ , which allows the cartridge to pass downward out of the mouth of the magazine.

The operation of my improved magazine is as follows: The magazine is laid down horizontally, the cover raised, and all the cartridge-space filled with cartridges. The spring is then wound up by the handle  $e''$ . When the radial spaces contain two cartridges the spring should be wound up about three times, so that it will have considerable power left when it forces out the last cartridge. When the magazine has been filled and wound, it may be attached to the arm, as shown in Fig. 1, by passing the slide down a dovetailed groove on the side of the breech-piece. This brings the mouth of the magazine over the loading-chamber. In manipulating the arm with the magazine attached, as shown in Fig. 1, the first cartridge,  $f$ , is brought down into the loading-chamber by the thumb and finger, and then pushed into the chamber of the barrel. By "loading-chamber" I mean that depression which is made by removing the breech-block, and in which the cartridge is placed before pushing it into the chamber of the barrel. As the cartridge  $f$  is removed the mainspring forces the cartridge  $f'$  forward against the curve  $v$ , to be in its turn removed by the thumb and finger. This curve receives and resists the tendency of the mainspring to force the cartridge farther on, although the cartridge is easily removed in a lateral direction by a little lateral force.

By reference to Fig. 1 it may be seen that the first cartridge is braced up into the curve  $v$  by the stop  $k$ , and cannot be removed until the stop is pushed back out of the way. When the cartridge which is being removed is down below the curve the stop immediately, by the power of spring  $l$ , assumes the position shown in Fig. 1, and thus again closes the mouth of

the magazine. When the radial chambers are large enough to hold only two cartridges the circular partition only passes once around. This divides the cartridges in the magazine into two circles, the outer circle having six more cartridges in it than the inner circle, and if still another circle were put outside, it also would require to have six more cartridges in it than the next circle within. As the diameter of the outer circle is larger than that of the inner circle by twice the diameter of a cartridge, it is capable of containing just six more cartridges than the inner circle. By this geometrical arrangement of the radial chambers or divisions of the circles I place the largest possible number of cartridges in a given space. The cartridges in the inner circle are conducted into the outer circle by means of the offset  $g'''$  in the circular partition  $g$ , so that all the cartridges in a magazine of two circles are forced out at the mouth by two revolutions of the radial arms.

In case the magazine contains three circles of cartridges, eighteen of the radial spaces would have in them a row of three cartridges each, arranged radially in relation to the hub; six spaces or chambers would contain two cartridges each, and six would contain one cartridge each, except at the offset in the circular partition. At that point the arrangement would be to a certain extent interrupted.

One important feature in this invention is in so dividing the cartridge-space by means of the radial arms that, when filled either with or without the circular partition  $g$ , the cartridges will be held in rows arranged radially in relation to the hub, and also in circles around the hub, the circles being only slightly interrupted at the offset. By cutting off the circular partition  $g$ , as indicated by the dotted line  $o$ , and retaining in the magazine only that portion of it which would be attached to the case at  $g''$ , and by moving the fastenings  $m$  and  $m'$  so that the magazine would always be held with its mouth directly down, its operation would be as perfect as if partition  $g$  reached entirely around between the circles, as it would still serve to separate the outer from the inner circle before the cartridges reached the mouth of the magazine; and as the mouth would always be down, any cartridges in the radial chambers would be brought by gravitation to the outer circle before they reach the partition  $g$ . It is therefore not essential in all cases that the partition  $g$  should extend entirely around the circle, its function being to separate the outer circle of cartridges from the next within, so that only one cartridge can be taken from each radial chamber and forced out at the mouth of the magazine at each revolution.

It would be practical to construct the magazine so that each radial chamber as it is brought around over the mouth would stop there till the cartridges have all passed out, and then move on, bringing the next radial chamber over the mouth, and so on till all the

radial chambers have been emptied. To do this the point of the short partition *g* would require to be raised, so as to throw out all the cartridges in the radial chamber at once instead of one at a time. By cutting the end of the radial partition to suit the taper of the cartridges, as shown in Fig. 4, the cartridge *f* is presented at the mouth of the magazine in a vertical position, the cartridge *f'* being thrown a little out of a vertical position by the radial partition to effect this object. By the curve backward at the end of the radial partition the cartridge which is about passing off the end of it gradually decreases the rapidity of its movement, till it rests gently against the cartridge in the rear of it, instead of accelerating its movement, as it would do if the partitions were straight. During the process of winding the magazine after charging it, the outer end of the mainspring, being attached to the hub at *i*, remains stationary; but the inner end is fastened to and wound around the tube *e'* by means of the handle *e''*, and is held wound up by ratchet and pawl *d* and *d'*. The ratchet *d*, being stationary, gives to the mainspring a tendency to draw around the hub *c* as fast as the cartridges are removed from the radial chambers.

In those arms in which the cartridge enters the loading-chamber by one opening and passes out of the breech of the arm by another opening, as in case of the Winchester gun, the magazine may be so arranged as to discharge the cartridges directly into the loading-chamber without manipulation for that purpose. In all cases where the magazine is attached to the side of the breech-piece, it should be so arranged as to rest upon the wrist of the left arm during off-hand firing.

The magazine, instead of being attached to the belt, may be attached to a shoulder-strap. In that case it need not be detached from the shoulder-strap while being used upon the arm as a magazine.

Having described my improved magazine, I desire to have secured to me as my invention, by Letters Patent of the United States, the following claims:

1. The arrangement of the radial arms or partitions of the cartridge-space as herein shown, whereby the cartridges are held in rows and circles, substantially as specified.
2. The combination of spring *h* with the hub *c* and radial arms *c'''*, substantially as and for the purpose set forth.
3. The stop *k*, with its spring *l*, in combination with curve *v*, when operating together, substantially as and for the purpose specified.
4. The combination of the radial arms *c'''* with the partition *g*, substantially as and for the purpose specified.
5. The stationary ratchet *d*, in combination with spring *h*, hub *c*, and radial arms *c'''*, substantially as shown.
6. In combination with a magazine constructed substantially as herein shown, the slide or fastening *m* and loop *m'*, whereby the magazine may be attached to the arm or carried upon the belt as a cartridge-box, as specified.
7. The curve backward in the outer ends of the radial partitions, as and for the purpose specified.
8. The form of the end of the radial partition—viz., longer at one corner than the other—substantially as and for the purpose specified.
9. The arrangement of the radial partition of the cartridge-space, whereby a certain geometrical arrangement of the cartridges is effected, substantially as specified.

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Witnesses:

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