

(No Model.)

R. H. S. THOMPSON.

ELECTRIC FIRE ARM.

No. 309,262.

Patented Dec. 16, 1884.

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Fig. 1.

Fig. 2.

Fig. 3.

Fig. 2.

A top view of a circular component, possibly a lens or a disc. It features a central square-shaped element labeled 'a' and a small circle labeled 'b' located near the center. The component has concentric circular lines around its perimeter.

Fig. 3.

A cross-sectional view of a mechanical assembly. A curved surface A is at the top. Below it is a hatched block containing a vertical rod I. A horizontal rod G passes through the block, with a handle F attached to its right end. A small component b is located near the bottom of the rod I.

Attest:  
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# UNITED STATES PATENT OFFICE.

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## ELECTRIC FIRE-ARM.

SPECIFICATION forming part of Letters Patent No. 309,262, dated December 16, 1884.

Application filed August 25, 1883. Renewed May 6, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, RICHARD H. S. THOMPSON, a citizen of the United States, and a resident of Lexington, in the county of Fayette and State of Kentucky, have invented certain new and useful Improvements in Electric Fire-Arms, of which the following is a specification.

This invention relates to fire-arms and cartridges therefor, and has for its object to provide an improvement in the manner of firing the cartridges in fire-arms by means of an electric current generated in the arm, and in the construction of cartridges provided with means for exploding the fulminate thereof by means of the electric current.

The invention consists in a fire-arm having located in the breech-piece a suitable electric generator, and having the electrodes thereof connected to and operated by the trigger, and in a cartridge of the usual construction having a depression in the center of the end for the reception of the fulminate, into which is fitted the igniter.

In the stock or breech-piece is placed any electric generator, either in the form of a primary battery or of a secondary or storage battery. The well-known chloride-of-silica battery has many advantages for this use, though I do not limit myself to any particular form of battery or any particular number of cells in the battery. To the terminals of the battery are connected the conductors, which lead to the trigger. The trigger is pivoted near the outside of the stock, as usual; but, instead of having the usual beveled edge to catch the lock-piece, it is provided with two extensions or electrodes projecting forward nearly to the end of the barrel of the gun. These extensions are properly insulated from each other, and connected to the conductors leading from the battery. These conductors may be insulated, if desired, in any usual manner, and are made into the form of a coil at some portion or portions of their length, so as to be capable of extension and retraction in the act of firing the cartridge. The cartridge preferably is made of the usual metallic body, having a recess in the end for the reception of the fulminate or explosive. In the fulminate is in-

serted or buried a small cross wire of platinum or other poor electrical conductor, which is connected by two conductors to the outside of the cartridge and properly insulated therefrom. This igniter, with or without the fulminating compound, may be made as a separate article of manufacture, adapted to be fitted into cartridges now in the market, thereby saving the expense of new machinery to form cartridges of this character. It will also be observed that the igniter may be removed from the cartridge after the charge has been exploded and used again in other cartridges of like character.

Referring to the accompanying drawings in more particularly describing my invention, Figure 1 represents a sectional view of a cartridge in the barrel of a fire-arm which is provided with means located in the stock thereof for igniting the explosive of the cartridge. Fig. 2 represents an end view of the cartridge. Fig. 3 is a modification showing short stationary conductors embedded in the breech of the gun.

Referring to the drawings, the breech-piece A is made of any convenient form or contour, the interior being recessed to receive and hold the battery or other electric generator. From the generator extend the conductors C C, which may be provided with coils D D. These conductors extend to the trigger E, which is pivoted near the under side of the stock in the usual manner, and may be, if desired, protected by the guard F. The upper end of the trigger is provided with two conductors or electrodes, G G, properly insulated from each other and connected to the conductors C C. The ends of these electrodes may be bent as shown, or of any other desired configuration. These conductors or electrodes may be insulated in any well-known manner. The barrel of the arm is of any usual construction adapted for breech-loaders.

The cartridge consists of a metallic or other body, I, containing the proper amount of powder or other explosive, and supporting the projectile J in its forward end. The rear end is preferably provided with a recess or depression, a, for the reception of the igniter and the fulminate.



The igniter consists, preferably, of a small strip of a relatively high-resistance conductor, *b*, connected to the conductors *C*, which project to or beyond the plane of the butt-end of the cartridge. These conductors may be expanded or bent so as to insure contact with the electrodes *G G*.

In the form shown in Fig. 3 portions of the conductor are embedded in the breech-piece of the gun in such a manner that when the cartridge is in position for firing the exploder will be in contact with these conductors. The igniter may all be of platinum, if desired.

The operation of firing is evident from the drawings. The cartridge being in position, it is only necessary to pull the trigger in the usual manner, when the electrodes *G G* will be brought in contact with the conductors connected with the primer, completing the electric circuit. The platinum wire will immediately become incandescent, exploding the fulminate, and consequently the cartridge. The resiliency of the coils or springs *D D* will restore the trigger to its normal position. If, however, it is necessary, the usual spring may be provided for this purpose.

It will be observed that one of the essential features of my improved igniter consists in the fact that it may be made as a separate and comparatively inexpensive article of manufacture, and may be applied to existing forms of cartridge-shells with very little trouble, and, further, the primer may be removed from the exploded shell and used again in other cartridges.

Instead of the galvanic or storage battery, a magneto or dynamo-electric generator may be used. This generator can be operated by a spring or other means of storing energy, in which case the operation of the trigger would first release the stored power and cause it to operate the generator, thereby producing the necessary current to ignite the explosive.

It is evident that numerous modifications of the devices shown or described may be adopted without departing from the spirit of my invention.

I do not herein claim an electrical igniter consisting of a strip of high-resistance conductor adapted to be inserted in the priming-recess of an ordinary recessed cartridge, and

having enlarged terminals, as I reserve the right to make a separate application for the same, and it is distinctly understood that I waive no rights to such invention by this disclaimer.

I claim—

1. The combination, with a cartridge-shell having a priming-recess in its base adapted to contain the fulminate, of an igniter consisting of a high-resistance conductor embedded in the fulminate, and having terminals, whereby electric contact may be made, substantially as described.

2. The combination, with the cartridge-shell *I*, having a depression or recess in its base for the reception of the fulminate, of an electrical igniter inserted therein, consisting of the high-resistance conductor having the extensions or electrodes *G*, substantially as described.

3. The combination, with the breech piece or stock of a fire-arm, of a generator of electricity located therein, a trigger, conductors connecting said trigger and generator, and electrodes connected to and carried by said trigger, and adapted to be operated thereby to close an electric circuit, substantially as described.

4. The combination, substantially as described, of a breech piece or stock of a fire-arm, a generator of electricity located therein, a trigger, resilient conductors connecting said trigger and generator, and opposite electrodes supported and operated by said trigger adapted to close the circuit, as set forth.

5. The combination of a cartridge provided with a recess in its base containing a fulminate and an electrical igniter with the frame of a gun, and a trigger carrying electrodes connected with a source of electricity, the said electrodes being adapted to close the circuit through the igniter upon the movement of the trigger.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

RICHARD H. S. THOMPSON.

Witnesses:

H. D. WINSOR,  
W. E. WINSOR.