

(No Model.)

S. RUSSELL.
ELECTRIC CARTRIDGE.

No. 319,629.

Patented June 9, 1885.

Fig. 1.

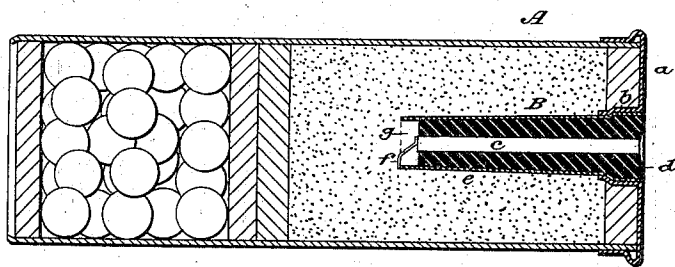


Fig. 2.



Fig. 3.

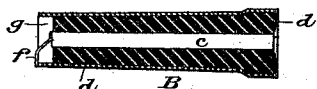


Fig. 4.

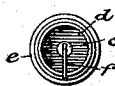


Fig. 5.

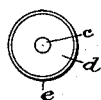
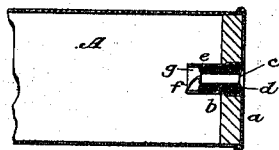


Fig. 6.



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UNITED STATES PATENT OFFICE

SAMUEL RUSSELL, OF BROOKLYN, ASSIGNOR TO THE AMERICAN ELECTRIC ARMS AND AMMUNITION COMPANY, OF NEW YORK, N. Y.

ELECTRIC CARTRIDGE.

SPECIFICATION forming part of Letters Patent No. 319,629, dated June 9, 1885.

Application filed January 29, 1885. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL RUSSELL, a citizen of the United States, residing in Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Electric Cartridges and Primers for Firing by Incandescence, of which the following is a specification.

This invention relates to cartridges to be discharged by electricity by the passage of an electric current adapted to heat to incandescence a conducting wire. My Patent No. 307,071, dated October 21, 1884, describes a cartridge to be fired by an electric current provided with a conducting-pin extending from the center of the base toward the front of the charge, insulated from the base by being inclosed in a tubular sheath, and connected at its front end to a platinum wire, and with a conducting-strip of metal connected with the other end of the platinum wire, extending back outside of the insulating-sheath and joining the metallic base of the shell. My application for patent on "primers for electric cartridges," filed November 29, 1884, Serial No. 149,157, describes an improved construction, whereby the electric primer is made complete in itself and separable from the shell, consisting of the central conducting-pin, the tubular insulating-sheath surrounding it, and a metallic tube inclosing the sheath, with the incandescing conductor joined at its opposite ends to the front ends of the pin and tube respectively. My present invention is an improvement upon both of these constructions, and is equally applicable to electric cartridges or to separable electric primers. Its object is to better protect the slender platinum wire from becoming injured or disconnected by careless handling or during the charging of the shell.

Figure 1 of the accompanying drawings is a longitudinal mid-section of a cartridge and its primer constructed according to my present invention. Fig. 2 is a side elevation of the primer removed. Fig. 3 is a longitudinal mid-section thereof. Fig. 4 is an elevation of the front end thereof. Fig. 5 is an elevation of the rear end thereof, and Fig. 6 is a section of a shell illustrating a modification.

All the figures are drawn to a magnified scale.

Let A designate the cartridge-shell, of which *a* is the metallic base, and *b* the neck, turned in centrally therefrom, and B the primer. (Shown removed in Figs. 2 and 3.) This primer consists of a central metallic pin, *c*, a tubular sheath, *d*, of insulating material surrounding said pin, and a metallic tube, *e*, surrounding said sheath. The tube *e* projects beyond the front end of the sheath *d* and also preferably beyond the front end of the pin *c*, as shown in Figs. 1 and 3, forming thus a recess, *g*. A piece of slender platinum wire, *f*, or of other suitable high-resistance conductor, is fastened at one end to the front end of the pin *c* and at the other end to the front portion of the tube *e*. The primer B may be sold separate from the cartridge-shell, they being made, however, in standard sizes to fit each other. To put them together it is only necessary to insert the primer through the base of the shell, pressing it forward, where its base portion will wedge tightly onto the neck *b*, thereby holding it firmly in place. The shell will then be charged with powder and shot, whereupon it is ready for use. In charging the shell the powder is first poured loosely in and jarred down. In so doing it fills the recess *g* and flows in under and around the wire *f*. This wire should not extend in a straight line from end to end, but should be curved outwardly. Then, when the powder is compacted by ramming the portion of powder beneath, this wire supports it and prevents its being pressed down and torn from its end connections. As the powder is rammed down the portion beneath the wire is compacted sufficiently to permit the wire to be pressed down to some extent, but never enough to break its connections. With the wire thus protected and supported the cartridge may be rammed with any desired force without possibility of impairing the operativeness of the electric primer. The inclosing of the platinum wire in this recess also serves to protect it from injury before the primer is inserted in the cartridge-shell.

Fig. 6 shows a modification wherein my invention is applied to a cartridge the primer

of which is not separable. The neck *b* is turned in farther than usual and takes the place of the tube *e*. The sheath *d* and pin *c* are pressed into this neck from the rear, and by being shorter than the neck they leave the recess *g* at the front thereof. The platinum wire *f* may be connected after the other parts are put together, or it may be soldered at one end to the pin *c*, and its other end be connected by being confined between the tubular neck and the sheath. This construction is applicable only to those cartridges wherein it is desired to ignite the charge of powder at or near the rear, as it is impracticable to turn in the neck *b* to any great distance. I have introduced this modification chiefly to show that my invention is applicable to electric primers which are inseparable from the cartridge-shells, as well as to those primers which are distinct and separable.

I make no claim in this application to anything shown in my said Patent No. 307,071, nor to anything claimed in my pending application, Serial No. 149,157, before referred to,

or in my other pending application, Serial No. 149,158, for "improvements in electric cartridges and primers for firing by an electric spark."

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

An electric primer for firing by incandescence, consisting of a central metallic pin, a tubular insulating sheath surrounding the same, a metal tube inclosing said sheath and projecting at its front end beyond the end of said sheath, forming thereby a recess, *g*, and a high-resistance conductor connected at one end to said pin and at its other to said tube, and lying partly or wholly in and protected by said recess, substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

SAMUEL RUSSELL.

Witnesses:

ARTHUR C. FRASER,
HENRY CONNETT.