No. 676,219. Patented June 11, 1901.

C. F. BRYANT & C. H. BROWN.

BLASTING DEVICE.

(No Model.) (Application filed Apr. 25, 1900.)

Fig. 1.

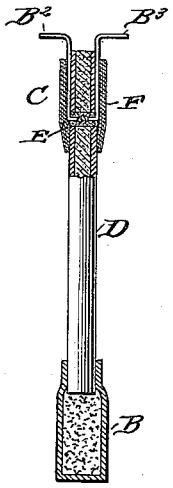


Fig. 3.

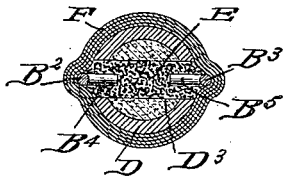
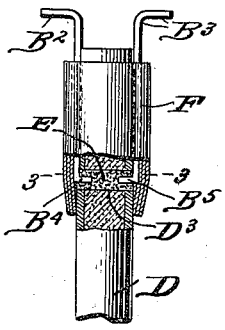


Fig. 2.



WITNESSES:

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CALEB F. BRYANT, OF CRIPPLECREEK, AND CHARLES H. BROWN, OF ALTMAN, COLORADO.

BLASTING DEVICE.

SPECIFICATION forming part of Letters Patent No. 676,219, dated June 11, 1901.

Original application filed March 24, 1899, Serial No. 710,363. Divided and this application filed April 25, 1900. Serial No. 14,251. (No model.)

To all whom it may concern:

Be it known that we, CALEB F. BRYANT, a resident of Cripplecreek, and CHARLES H. BROWN, a resident of Altman, in the county of Teller and State of Colorado, citizens of the United States, have invented a new and Improved Electric Fuse, of which the following is a full, clear, and exact description, this being a divisional application of the application for Letters Patent of the United States for improvements in blasting, Serial No. 710,363, filed by us on March 24, 1899.

The object of the present invention is to provide a new and improved igniting device for fuses, which is simple and durable in construction, cheap to manufacture, very effective in operation, and arranged to insure a positive ignition of the fuse connected with the blasting charge.

The invention consists of novel features and parts and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation, partly in section, of a fuse having the improvement applied. Fig. 2 is an enlarged sectional side elevation of the primary igniting device for a fuse, and Fig. 3 is an enlarged sectional plan view of the same on the line 3 3 in Fig. 2.

Referring to the drawings, D is a fuse having the ordinary cap B on one end and provided at its other end with the primary igniting device C. The primary igniting device C consists of the terminals B^2 B^3, adapted to form a part of an electric circuit and extending along the outside of the fuse D, near the end thereof, the terminals having inwardly-bent ends B^4 B^5, extending into a transverse aperture D^3, formed in the fuse and filled with a mixture E, of filings and a combustible material, such as black powder, the mixture being in contact with the charge of the fuse. The terminals B^2 B^3 are secured in place on the outside of the fuse by a water-proof tape F, wrapped around the fuse and terminals and forming a shell on the end of the fuse.

When a current is sent through the wire of an electric circuit and with which the terminals are to be connected, it passes from one terminal to the other by way of the mixture E, so that the filings are heated to ignite the combustible material of the mixture, or a spark is produced between the terminals to fire the combustible material, so that in either case the fuse D is set off.

By using the filings as a partial conductor for the electric current in the primary igniter, as above explained, a positive ignition is always insured and more primary igniters can be set off at the same time by an electric current of the same strength than would be possible if the partial conductor were omitted.

By securing the terminals in place on the fuse by the tape F the primary igniters are rendered moisture-proof, thus preventing the danger of the formation of a short circuit.

An ordinary cap B is generally used when dynamite or the like forms the explosive charge in the drill-hole; but in case gunpowder or like explosive is used for blasting then the cap E may be dispensed with and the lower end of the fuse D may be directly extended into the gunpowder or like explosive, which is then ignited when the burning fuse reaches the powder.

Having thus fully described our invention, we claim as new and desire to secure by Letters Patent—

1. A blasting device, provided with a fuse, and a primary igniting device for said fuse, and comprising a mixture of combustible material and metallic filings, arranged in contact with the charge of the fuse, and terminals extending into said mixture and adapted to form a part of an electric circuit, substantially as shown and described.

2. A blasting device, provided with a fuse having a transverse opening filled with a mixture of a combustible material and metallic filings, and terminals secured to the outside of the fuse and having inwardly-bent ends extending into said transverse opening and

into the mixture therein, said terminals being adapted to form a part of an electric circuit, substantially as shown and described.

3. A blasting device, provided with a fuse having a transverse opening filled with a combustible material consisting of metallic filings and powder, terminals on the outside of the fuse and having inwardly-bent ends extending into said transverse opening and into the material therein, said terminals being adapted to form a part of an electric circuit, and a waterproof tape wrapped around the fuse and terminals and securing the terminals to said fuse, the tape extending over the said opening, substantially as shown and described.

4. A blasting device, provided with a fuse having a transverse opening near one end, said opening leading out through opposite sides of the fuse, a combustible material in the opening and in contact with the charge of the fuse, terminals lying against the outer surface of the fuse and having their inner ends bent inwardly and extending into the combustible material, said terminals being adapted to form a part of an electric circuit and a shell surrounding the upper end of the fuse and securing the terminals on the fuse, substantially as described.

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Witnesses:
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