

BROWNE & BROWNE.  
Improvement in Electric-Fuses.

No. 128,945.

Patented July 16, 1872.

Fig. 1.

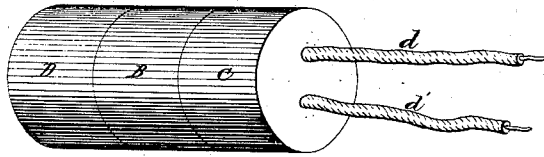


Fig. 2.

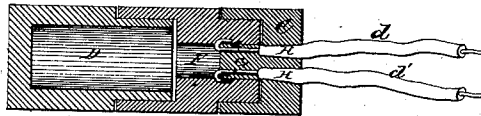
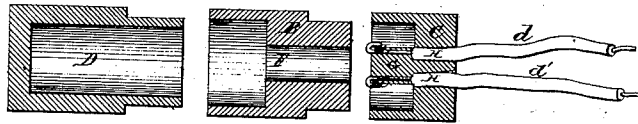


Fig. 3.



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# UNITED STATES PATENT OFFICE.

CHARLES A. BROWNE AND ISAAC S. BROWNE, OF ADAMS, MASSACHUSETTS.

## IMPROVEMENT IN ELECTRIC FUSES.

Specification forming part of Letters Patent No. 128,945, dated July 16, 1872.

### SPECIFICATION.

To all whom it may concern:

Be it known that we, CHARLES A. and ISAAC S. BROWNE, of Adams, in the county of Berkshire and State of Massachusetts, have invented certain new and useful Improvements in Electric Fuses; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which form a part of this specification.

The nature of our invention consists in the manner in which the fuse-wires are attached to the fuse-head, and in placing that portion of the fuse-head, which contains the ordinary powder, within that portion of the fuse-head which contains the priming material.

In order to enable others skilled in the art to which our invention appertains to make and use the same, we will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a perspective view of the fuse. Fig. 2 is a longitudinal section of the same; and Fig. 3 is a similar view, representing the several parts before they are united.

The several parts of the fuse-head may be made of wood, or other suitable material.

In the drawing, *d d'* represent the insulated battery or fuse-wires. After removing the insulation from their extremities, the wires are passed through the tapering holes H H in the cap C, which forms the upper extremity of the fuse-head. These wires, after being passed through the cap, are turned sharply over the projection G, as shown at *a a'*, which firmly secures them to the cap C, independently of any other portion of the fuse-head. The tube B, which forms the central portion of the fuse-head, is now driven into the cap C, the projection G entering the smaller of the two holes in the tube B. As the projection G in the cap C is of less length than the small hole in the tube B, a small chamber, F, is thereby formed, as shown in Fig. 2, with which the battery-wires communicate, said wires being separated the proper distance by the intervening wood between the tapering holes H H in the cap C. In this chamber F is placed the priming, an explosive which is easily ignited

by the passage of electricity from one of the terminals to the other of the fuse-wires H H at *a a'*. The preparations used in priming electric fuses are generally too quick in their action, and give too little flame in their explosion, to ignite with certainty the charge in which the fuse is placed. To effect the certain ignition of the charge we use a cup, D, which is filled with an ordinary powder and which is placed within the chamber containing the priming material. This cup forms the lower extremity of the fuse-head.

The operation of the fuse is very simple. The passage of electricity from one fuse-wire to the other in the chamber F ignites the priming, which, in turn, ignites the powder in the cup D, the explosion of which fires the charge in which the fuse is placed.

The advantages of constructing a fuse in this manner are as follows: The fuse is extremely simple in construction and the different parts are not liable to become disarranged from the peculiar manner in which the wires are attached to the fuse-head, and in the manner of fitting the different parts together.

In electric fuses, as generally constructed, the priming-chamber fits closely within the cup containing the common powder. Now, as powerful fulminates must be substituted for this common powder in the construction of fuses used in the explosion of "nitro" preparations, such as "nitro-glycerine," "dualine," "dynamite," "gun-cotton," &c., there is great danger attending the forcing this priming-chamber into the cup containing this fulminate. Accidents are not unfrequent from this source. This danger is wholly obviated by placing the cup which contains the ordinary or fulminating powder within the priming-chamber. In this way there is no friction or pressure upon the common powder or fulminate in the cup.

There are many different styles of electric fuses similar in principle, but varying in construction, and we desire to limit our invention to the manner of securing the fuse-wires to the fuse-head, and to the portion of the cup which contains the ordinary or fulminating powder.

We do not claim broadly, in an electric fuse, a cap having the fuse-wire secured thereto; but

What we claim as new, and desire to secure by Letters Patent, is—

1. The cap C provided with projection *g*, in combination with tube B and cup D, all constructed and arranged as and for the purpose set forth.

2. An electric fuse having the cup which contains the ordinary fulminating powders placed within that portion of the fuse-head

which contains the priming material, substantially as described.

In testimony that we claim the foregoing as our own, we affix our signatures in presence of two witnesses.

Witnesses: CHAS. A. BROWNE.  
ISAAC S. BROWNE.  
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JAMES WHITE.