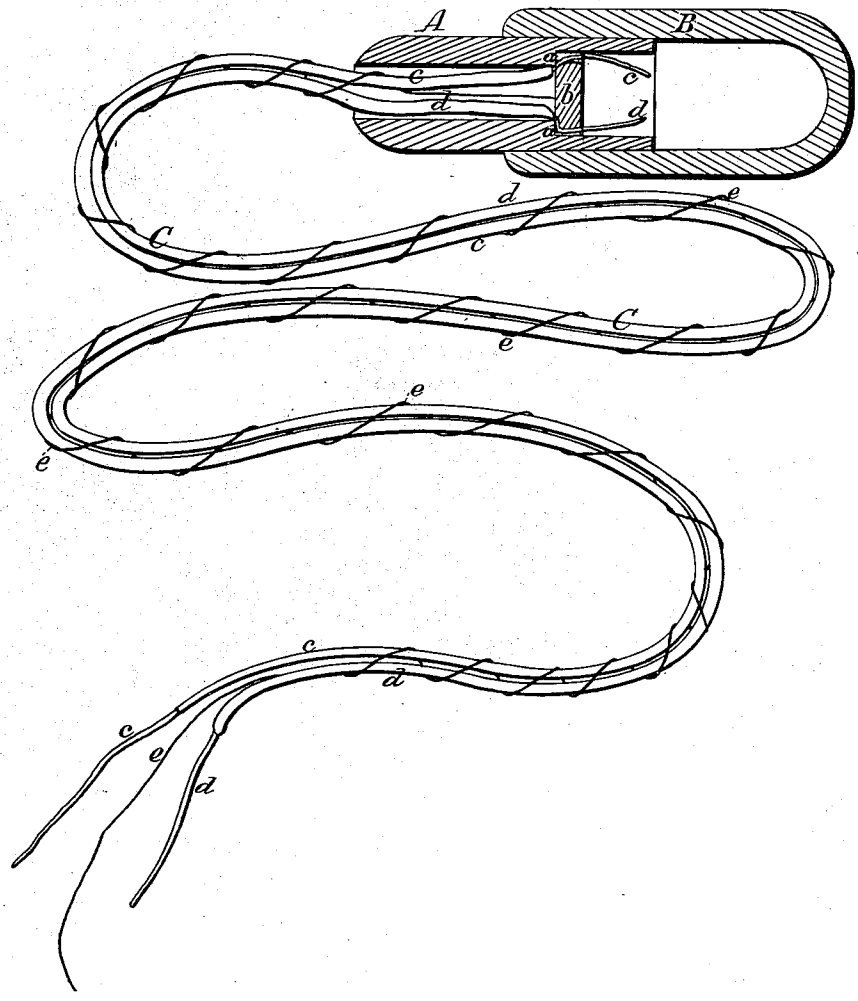
H. J. Smith.

Electric Fuse.

No. 97,241. Patented Nov. 23, 1869.



Witnesses.

W. W. Swan.

W. B. Jackson

Inventor.

H. Julius Smith.

United States Patent Office.

H. JULIUS SMITH, OF BOSTON, MASSACHUSETTS.

Letters Patent No. 97,241, *dated November* 23, 1869.

IMPROVEMENT IN ELECTRIC FUSES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, H. JULIUS SMITH, of Boston, in the State of Massachusetts, have invented an Improved Electric Fuse and Cord; and I do hereby declare the following to be a full and correct description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a longitudinal sectional view of the fuse with the electric cord attached.

My invention consists in the employment of novel devices and means for securing the wires within the fuse, combining the wires into a cord, and rendering the fuse impervious to moisture.

The shell of the fuse is of wood, and, as is common with electric fuses, consists of a cup, B, and a cylinder, A.

Heretofore, the insulated wires have usually been run through the cylinder, and the cylinder has been filled with a non-conducting cement. The insulating-covering has then been removed from the projecting end of the wires, and the end of the cylinder from which they projected has been driven into the cup, which had been charged with powder.

My invention does away with the use of cement, and also gives a chamber within the cylinder of sufficient size to contain all the powder which is required of the kind most easily ignited by the electric spark, while the cup may be charged with an inferior powder.

The cylinder of my fuse is made with a shoulder at *a*, and is provided with a disk, (wooden disk,) *b*, which fits closely in the larger chamber of the receiver, as shown.

The wires are put through the cylinder, and secured by pushing the disk between them into the cylinder as far as the shoulder, as shown.

The ends of the wires may be uncovered before the disk is pushed into its place; but care must be taken that they are protected by the insulating-covering through the smaller part of the cylinder as far as the shoulder *b*.

The chamber in the cylinder is then filled with fulminating-powder, and the cylinder driven into the cup, as heretofore.

The cup may have been charged with the same fulminating-powder, or with a cheaper powder.

The two insulated wires are usually made into a cord, by twisting them together. It is frequently necessary afterward to separate the wires for several yards, when many blasts are to be made at one time. But when wires twisted into a cord are to be separated, it takes a good deal of time to untwist them, and the untwisting may disarrange the blasting-apparatus.

I have devised a method of uniting the wires which obviates these difficulties.

The two wires having been laid together, as nearly parallel as possible, I wind a weak cotton thread around them, in such a manner, that at each turn the thread shall advance a considerable distance on the wires, as seen in Figure 2, where *d* and *e* are the insulated wires, and *o*, the thread.

When it is necessary to separate the wires, it can be readily done, by simply pulling them apart, as the thread breaks easily, and allows the wires to separate without becoming entangled together or with the uniting-thread.

Care must be taken that a complete revolution of the thread around the insulated wires does not take place within too short a space, otherwise the thread will not break and allow the separation of the wires so readily as desired.

Two insulated wires united by a thread of non-conducting material, which will readily break to allow the separation of the wires, as above described, will be of use for electrical purposes, when not connected with a fuse.

The wires thus united should be dipped into a solution, which, upon drying, leaves it water-proof. I prefer for this purpose Chatterton's compound.

After the wires have been secured within the fuse, as previously directed, the wooden shell is dipped into paraffine. This makes the fuse water-proof.

To prevent the disk *b* from splitting when driven, two small nicks are made in its periphery, for the reception of the wires.

I claim—

1. Securing the ends of the insulated wires within the shell of the fuse by a disk, substantially as described.

2. Uniting the two parallel insulated wires by a non-conducting thread, substantially as described, to allow the wires to be separated, as specified.

The above specification of my said invention, signed and witnessed at Boston, this 21st day of June, A. D. 1869.

H. JULIUS SMITH.

Witnesses:
W. W. SWAN,
W. H. JACKSON.