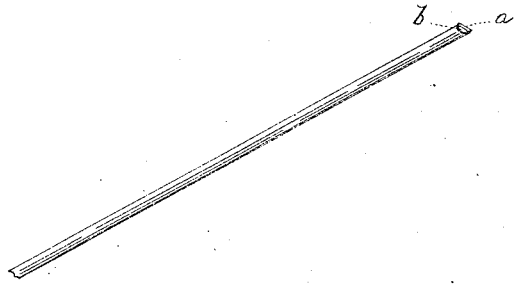


W. A. LEONARD.

CONTINUOUS FUSE.

No. 184,043.

Patented Nov. 7, 1876.



Witnesses.

*L. H. Latimer,*

*W. J. Pratt.*

Inventor.

*William A. Leonard,*

*per bonds, Gregory*

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# UNITED STATES PATENT OFFICE

WILLIAM A. LEONARD, OF BOSTON, MASSACHUSETTS.

## IMPROVEMENT IN CONTINUOUS FUSE.

Specification forming part of Letters Patent No. 184,043, dated November 7, 1876; application filed August 12, 1876.

*To all whom it may concern:*

Be it known that I, WILLIAM A. LEONARD, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improved Continuous Fuse, of which the following is a specification:

This invention relates to a continuous fuse, to be used as a substitute for matches, for lighting lamps, wicks, gas, &c. The fuse is placed in an air-tight case, in close proximity to the wick or lamp or gas to be lighted, and is made movable, so as to expose its end to the action of a finger, that, striking the match composition forming part of the fuse, ignites the fuse and the adjacent wick, lamp, or gas.

The base of this improved fuse is composed of xylonite, manufactured as described in certain United States Patents, Nos. 91,377, 97,454, and 101,175, granted to Daniel Spill. Such compound is rolled out into sheet form to a thickness of about one thirty-second of an inch, more or less, is cut up into long, narrow, rectangular strips, and is then coated on one side with a friction-match compound.

The match compound preferably used on this xylonite base or strip is water-proof, and is made as follows, viz: Dissolve forty parts, by weight, of shellac, in forty parts, by weight, of alcohol, of a strength not less than ninety-eight per cent. volume; place this mixture in an air-tight metallic vessel, together with twelve parts, by weight, of ordinary phosphorus, and heat it to a temperature of about 150° Fahrenheit; then agitate until the phosphorus and shellac are thoroughly mixed, or perfect emulsion takes place. Then add fourteen parts, by weight, of amorphous phosphorus, thirty-two parts of nitrate of potash finely powdered, and twelve parts of peroxide of lead, and mix all thoroughly.

I do not desire to limit this invention to the use of the exact proportions as above stated for the match composition, but the proportions stated are considered the best.

If this composition is to be particularly fine, it may be ground in an ordinary paint-mill.

Instead of shellac, I may employ other well-known resinous gums, as gum-copal; and the shellac or gum, instead of being dissolved in alcohol, may be dissolved in any other known solvent, as, for instance, ammonia, or in alkaline liquids.

Xylonite has many advantages for use as a fuse base, because of its cheapness, and ease and rapidity of manufacture; it retains its flame a comparatively long time, is free from oily or other objectionable residuum, and it will not explode.

The fuse composed of the xylonite base, coated with the novel friction-match compound herein described, is water-proof; but, instead of this compound, an ordinary match compound, such as is usually employed in connection with matches, might be employed and make a very good fuse; so, too, the match compound above described may be applied to ordinary matches, making them water-proof.

In ordinary match compounds the explosive ingredients, such as potash and phosphorus, are held together by means of glue or gum-arabic—substances not water-proof. I have found that shellac and other resinous gums may be used in place of the gum-arabic or glue, and thereby make a water-proof compound. The explosive ingredients used with the shellac may be as usual.

The drawing shows the improved fuse in perspective. The letter *a* designates the xylonite base, and *b*, the match compound.

I claim—

A continuous fuse, composed of xylonite and a match composition applied thereto, substantially as described.

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

WILLIAM A. LEONARD.

Witnesses:

G. W. GREGORY,  
S. B. KIDDER.