

# UNITED STATES PATENT OFFICE.

GEORGE HAYES, OF GIRARDVILLE, PENNSYLVANIA.

COMPOUND FOR PREPARING THE WICKS OR MATCHES OF MINERS' SQUIBS.

SPECIFICATION forming part of Letters Patent No. 230,775, dated August 3, 1880.

Application filed April 8, 1880. (Specimens.)

*To all whom it may concern:*

Be it known that I, GEORGE HAYES, a citizen of the United States, residing at Girardville, in the county of Schuylkill and State of Pennsylvania, have invented a certain new and useful Compound for Preparing the Wicks or Matches of Miners' Squibs; and I do hereby declare that the following is a full, clear, and exact description of the same.

10 The present invention has relation to the preparation of the wick or match of squibs used in the process of blasting coal, rock, &c.; and it consists in a compound composed of certain ingredients, into the solution of which  
15 the wick or match of the squib is dipped or otherwise saturated, as will be hereinafter described, and subsequently pointed out in the claim.

20 In the preparation of the compound I take the following ingredients, in the proportions substantially as follows: Oil, one-half pint; sulphur, thirty-two ounces; camphor, eight ounces, and red lead, two ounces, all of which are boiled together until thoroughly united or  
25 mixed.

30 The purpose of the oil is to cause the whole solution to permeate the match, the sulphur to dry and harden the match, and the camphor to prevent the extinguishment of the fire when once lighted. These three mentioned ingredients are all of an inflammable nature, which is necessary for the purpose. The red lead is to retard the too speedy consumption of the match.

35 After the match has been dipped or saturated with the compound, if found desirable,

after the match is perfectly dry, it may be dipped in a solution of shellac and alcohol in the proportion of one part of the former to five parts of the latter, which will prevent injury  
40 to the match from moisture by counteracting the influence of the atmosphere in the mines, which is always damp, the shellac being dissolved only by heat.

The result of preparing the match with the compound of the several ingredients named is  
45 that the match will burn in any position, either perpendicular, horizontal, or an inclination of any number of degrees at the one rate of speed, the position causing no variation in the time  
50 of consumption.

The advantages of a squib having its wick or match prepared in accordance with my invention will be the more certain discharge or explosion of the shot or blast, the safety of  
55 life and limb, and the prevention of numerous delays in the mining of ores, minerals, or where blasting is necessary.

Having now fully described my invention, what I claim as new, and desire to secure by  
60 Letters Patent, is—

A compound for preparing the wicks or matches of miners' squibs, consisting of oil, sulphur, camphor, and red lead, in substantially the proportions named.  
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In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

GEORGE HAYES.

Witnesses:

B. J. SMITH,  
THOS. FLETCHER.