

United States Patent Office.

THEODORE SCHWARTZ, OF NEW YORK, N. Y.

Letters Patent No. 113,578, dated April 11, 1871.

IMPROVEMENT IN KINDLING MATERIALS.

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

To all whom it may concern:

Be it known I, THEODORE SCHWARTZ, of the city, county, and State of New York, have invented an Improved Kindling Material, which I denominate "Coal-Matches;" and I do hereby declare the following to be a full and correct description of the same.

The nature of my invention consists in a special manufacture of kindling material for the ignition of coal, the product of which manufacture I denominate coal-matches, and which I believe to be more efficient and advantageous than any material now used for that purpose.

Various experiments which I have lately made with a view to determine the cheapest and most convenient and efficient means of lighting hard-coal fires have led me to the following conclusions:

First, properly-prepared wood (preferably hard wood) is the best material for the purpose.

Second, it should be in small sticks of definite and uniform length.

Third, the wood should be perfectly desiccated, so as to expel all moisture that would impede combustion.

Fourth, it should be rendered so inflammable that the pieces can be instantaneously lighted singly, from below, so that they may burn in an upright or somewhat inclined position, and may, therefore, be placed in the smallest space compatible with free combustion.

Fifth, the lighting should extend simultaneously to all the sticks, inflaming at the same instant the whole mass.

Sixth, before lighting the wood it should be so enveloped in coal that all the heat is confined within a limited space and concentrated upon the coal in immediate contact with the kindling.

The coal-matches now to be described seek to realize the economical conditions above indicated.

Common unprepared wood may be applicable for the purpose; but I prefer what is termed "tinder-wood," a product of hard wood obtained by a special process, for which I received Letters Patent of the United States March 29, 1870.

I reduce the wood to sticks similar to common kindling-wood, but find it advantageous to give them a length of about six inches instead of three-inches, as usual. When sticks of this description, especially those of tinder-wood, are applied endwise to the surface of thin rosin-varnish, or other inflammable liquid, the wood, by capillary action, takes up the liquid with avidity; and I take advantage of this fact to impart ready and rapid inflammability to one or both ends of the sticks by the application of such a varnish to them. In the case of tinder-wood it is desirable that the varnish be applied while the wood is still hot from the previous treatment.

I apply the varnish or inflammable material to the end or ends of the sticks, not by dipping, in the ordinary sense of that word, but by bringing the ends of

the sticks, singly or in bundles, into simple contact with the surface of the liquid, and allowing them to remain in such contact only long enough to absorb the smallest quantity of it required to impart the desired inflammability. This I can accomplish by supporting the sticks on a suitable wire frame and passing a stream of varnish below them with its surface in contact with their lower ends. The material might also, if preferred, be applied by means of a brush to the ends of the sticks, singly or in bundles. Thus the requisite inflammability is secured at the smallest expenditure of material, and without immersing or dipping the sticks, or daubing their sides with superfluous sticky material, which would render them disagreeable to handle, besides involving waste.

My method or system of applying the inflammable material has nothing in common with any method which exposes the sides of the sticks to be daubed or coated with waste material, involving loss and impairing the value of the product.

The use of varnish, however confined, would be attended with some tackiness. This I remedy by applying fine saw-dust to the sticky surface of the varnish.

As tinder-wood is abundantly produced at moderate cost by my patented processes of manufacturing acetic acid, and as a largely-enhanced effect is produced by such wood prepared as hereinbefore specified, my coal-matches undoubtedly offer a means of kindling hard-coal fires, combining decided economy with convenience, compactness, and uniformity.

Having thus described the nature of my invention, I wish it to be understood that I prefer coal-matches made of tinder-wood, having one end only coated with a varnish made of rosin dissolved in benzine, and saw-dust applied to the varnished end, to prevent tackiness.

What I claim, and desire to secure by Letters Patent, is—

1. A new article of manufacture which I call coal-matches, the same consisting of sticks, preferably of tinder-wood, one or both ends of which have absorbed an inflammable liquid varnish, or other suitable inflammable material, and been protected from tackiness by the application of sawdust to the varnished surface, all as hereinbefore fully set forth.

2. The special process or method of applying the inflammable material to the end surfaces of the sticks, as described.

3. Sticks of wood having special inflammability confined to one or both ends by an application of varnish, or other suitable inflammable material, restricted to said end or ends, for the purpose specified.

The above specification of my said invention signed and witnessed at Washington this 14th day of January, A. D. 1871.

Witnesses:

THEODORE SCHWARTZ.

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