OR 528,515

UNITED STATES PATENT OFFICE.

ALEXANDER HENSLEY, OF PHILADELPHIA, PENNSYLVANIA.

FLASH-LIGHT COMPOUND.

SPECIFICATION forming part of Letters Patent No. 528,515, dated October 30, 1894.

Application filed May 3, 1894. Serial No. 509,888. (No specimens.)

To all whom it may concern:

Be it known that I, ALEXANDER HENSLEY, a citizen of the United States, residing at the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in a Compound for Producing a Flash-Light, of which the following is a specification.

My invention has relation to the manufacture of a compound for producing a flash light of great intensity for instantaneous photographic work.

The principal object of my invention is to provide a compound or admixture for instantaneous photographic work that can be handled with perfect safety, that is, without danger of explosion by friction or concussion, and at the same time such a compound or admixture as will readily ignite.

My invention consists in mixing amorphous phosphorus a nitrate or nitrates of the metals or alkaline earths with aluminum to produce a compound or admixture adapted by ignition to give a flash or sunlight flame of such intensity as to effect an instantaneous photographic action upon a sensitized film or surface.

In order that my invention may be fully understood by those skilled in the art to which it appertains, I will now proceed to describe more particularly the characteristic features of the compound or admixture and the results in practice obtained from the use thereof.

In carrying my invention into effect the following formula may be used for the preparation of the compound or admixture with excellent results.

I take say seventy-five (75) parts by weight, more or less, of a nitrate or nitrates such as barium, strontium, potassium, sodium, lead, &c., either alone or a mixture of two or more of them and ten (10) parts by weight, more or less, of amorphous phosphorus or the like and fifteen (15) parts by weight, more or less, of aluminum in a granular form or in an impalpable powder and these materials are mixed together either in a dry or in a wet state by the use of a solvent, such as water, alcohol, &c.

The materials composing the compound when mechanically mixed together in a wet state in a suitable appliance may be compressed into pastils, pellets or the like so as to permit of their ignition and production of a sunlight flame or a flame of such incandescence as to be adapted for instantaneous photographic flash light work.

It may, however, be here remarked, that my invention covers the use of the aforesaid materials in either the form of a powder in which form it is more generally used, owing to the convenience thereof and ready application of the same to the intended purpose, yet nevertheless it may be used in the form of pastils, pellets, pills or the like for such use.

The amorphous phosphorus is employed in the compound to promote rapid ignition and complete combustion.

In the use of amorphous phosphorus as an element of the compound of my invention, as practice has demonstrated, the smoke resulting from the ignition of the same, is reduced to a minimum. Moreover, the amorphous phosphorus in the admixture or combination with a nitrate or nitrates of the metals or alkaline earths and with aluminum is highly preferable to the use of the same with the chlorates or substances capable of yielding oxygen, for the reason that it liberates the oxygen gas with rapidity from the nitrate or nitrates and thus furnishes a copious supply of the same, which is essentially requisite for permitting of the ignition of the metallic aluminum in an impalpable powder or in a granular form, and which latter substance forms an essential element of the admixture or compound of my present invention, because as experience has demonstrated, the resultant oxid therefrom is brought to a high state of incandescence or gives a sunlight flame adapted especially for the production of a continuous spectrum rich in chemical rays or vibrations having the power of in-

stantly effecting a photographic action of an object upon a sensitized surface under the influence of an exposure thereto.

Having thus described the nature and objects of my invention, what I claim as new, and desire to secure by Letters Patent, is—

A compound for producing a flash light, composed of aluminum, a nitrate or nitrates of the metals or alkaline earths and amorphous phosphorus, substantially as and for the purposes set forth.

In testimony whereof I have hereunto set my signature in the presence of two subscribing witnesses.

ALEXANDER HENSLEY.

Witnesses:
THOMAS M. SMITH,
RICHARD C. MAXWELL.

Correction in Letters Patent No. 528,515.

It is hereby certified that the name of the patentee in Letters Patent No. 528,515, granted October 30, 1894, for an improvement in "Flash-Light Compounds," was erroneously written and printed "Alexander Hensley," whereas said name should have been written and printed *Alexander Hemsley;* and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 6th day of November, A. D. 1894.

[SEAL.]

JNO. M. REYNOLDS,
Assistant Secretary of the Interior.

Countersigned:

JOHN S. SEYMOUR,
Commissioner of Patents.