UNITED STATES PATENT OFFICE.

MORRIS B. EATON, OF LE ROY, ASSIGNOR OF ONE-HALF HIS RIGHT TO LEWIS H. ROGERS, OF AVON, NEW YORK.

IMPROVEMENT IN COMPOSITIONS FOR ECONOMIZING AND ASSISTING THE COMBUSTION OF COAL.

Specification forming part of Letters Patent No. **182,809**, dated October 3, 1876; application filed May 16, 1876.

To all whom it may concern:

Be it known that I, MORRIS B. EATON, of Le Roy, in the county of Genesee and State of New York, have invented a certain new and useful Composition for Assisting and Economizing the Combustion of Coal; and I do hereby declare that the following is a full, clear, and exact description of the same.

The object of my improvement is to assist and economize the combustion of coal, by combining therewith a composition which will ignite and consume the gases which are evolved, especially when the coal is first ignited, large quantities of which gases ordinarily escape for the want of the necessary supply of oxygen to effect combustion.

The invention consists of a composition of Glauber salts, (sulphate of soda,) wood-ashes, and fine coal-dust, as hereinafter described.

These materials, in desired proportions, are thoroughly mixed and stirred together, and are applied to the coal, either in bulk at the yard or at the time of burning. The application can be made in the form of powder sprinkled upon the coal, or mixed in water and sprinkled over it; but it should be diffused or incorporated as much as possible through the body of coal to obtain the best effect.

The effect of the Glauber salts is to evolve oxygen in the combustion, which, uniting with the gases generated from the coal under heat, ignites and consumes them. The effect is to produce a combustion in advance of the through ignition of the lumps of coal, and this advanced combustion ignites the gases, which would otherwise escape. The importance of this will be appreciated when it is considered that the great portion of gas is generated before the coal is thoroughly burned.

The fine coal-dust in the compound is for the purpose of furnishing the particles of carbon to unite with the salts to produce combustion, as above described. These particles, being in minute form and in intimate contact with all the particles of the salts, combine readily therewith, and furnish the supply, which, though present in the large lumps of coal, is not available for the purpose. They give to the salts the carbon they need immediately, which the coals themselves cannot do. This carbon may be finely-ground charcoal, anthracite coal, or equivalent carbonaceous material.

The effect of the wood-ashes is to retard too rapid action of the compound, its alkaline qualities retarding the combustion, thereby rendering the fire more enduring. This material has the quality of making the compound adhere to the coal without cementing the lumps together, as coal-ashes do.

The proportions of the ingredients may be varied as desired. I prefer, however, compounding the material in the following proportions: Glauber salts, three pounds; wood-ashes, eleven pounds; fine coal, seven pounds. In use, I prefer to use one pound of this compound with one hundred pounds of coal.

What I claim as new is—

The compound herein described for treating coal, consisting of Glauber salts, wood-ashes, and fine coal, in the proportions substantially as named, and applied in a powdered form, as and for the purpose specified.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

MORRIS B. EATON.

Witnesses:

S. E. WELLS,

S. O. C. FRACKER.