

# UNITED STATES PATENT OFFICE.

GEORGE S. SPRING AND HERMAN L. REIWITCH, OF CHICAGO, ILLINOIS.

COMPOUND FOR AND PROCESS OF AIDING COMBUSTION OF COAL, &c.

SPECIFICATION forming part of Letters Patent No. 537,998, dated April 23, 1895.

Application filed June 20, 1894. Serial No. 515,144. (No specimens.)

*To all whom it may concern:*

Be it known that we, GEORGE S. SPRING and HERMAN L. REIWITCH, of Chicago, in the county of Cook and State of Illinois, have invented a new and Improved Compound for and Process of Aiding the Combustion of Coal and the Production of Coke, of which the following is a specification.

Our invention relates to improvements in coal combustion and coke production by means of a peculiar compound of chemicals substantially as hereinafter described.

The primary object of our invention is to enable coal of any quality to last longer in combustion and give greater heat than without our invention.

A further object of our invention is to produce in a manner altogether different from that now followed a commercial quality of coke.

A further object of our invention is to consume in a great measure the smoke that escapes from coal during combustion.

Our compound consists (out of one hundred parts) of forty-nine parts sodium carbonate; thirty-three parts magnesium sulphate; and eighteen parts sodium chloride. These are dissolved in water (eight gallons to each pound) and the solution applied to the coal either before or after combustion has begun.

The eighteen parts of sodium chloride, although desirable, are not absolutely essential and may be omitted. In such an event the proportions of the other ingredients will have to be increased to sixty parts of sodium carbonate and forty of magnesium sulphate.

The chemical compound, consisting of the ingredients as described and substantially in the proportions named, when applied to coal in any kind of fire place, furnace, or grate, produces a greater quantity of heat units, and

consumes nearly all the smoke that escapes from the coal, thus making greater economy in the use of the fuel.

This compound also when applied to soft coal leaves, when the by-products are consumed, a good quality of coke, which can be taken from the fire to be afterward used as coke, or left in the fire place, furnace, or grate to continue to supply the fire.

Said compound also converts soft coal into coke in any kind of place where a fire can be made, the particular novelty being that the coke can be made in an open fire place, grate, furnace, or stove.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The process of converting coal into coke which consists in applying a compound of sodium carbonate and magnesium sulphate to the coal and burning the coal substantially as herein described.

2. A compound for the consumption of smoke in the combustion of coal, consisting of sodium carbonate and magnesium sulphate substantially in the proportions named.

3. A compound for increasing in combustion the heat units and prolonging the lasting quality of the coal, consisting of sodium carbonate and magnesium sulphate in or about the proportions described.

4. The new compound consisting of sodium carbonate, magnesium sulphate and sodium chloride, mixed in or about the proportions described and for the purposes set forth.

GEORGE S. SPRING.  
HERMAN L. REIWITCH.

Witnesses:

DAVID REIWITCH,  
SARAH REIWITCH.