No. 751,468. Patented February 9, 1904.

UNITED STATES PATENT OFFICE.

MELVIN W. COTTLE, OF ST. LOUIS, MISSOURI, ASSIGNOR TO COALEO FUEL MANUFACTURING COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF MISSOURI.

ARTIFICIAL-FUEL BLOCK AND PROCESS OF PRODUCING SAME.

SPECIFICATION forming part of Letters Patent No. 751,468, dated February 9, 1904.

Application filed July 31, 1903. Serial No. 167,678. (No specimens.)

To all whom it may concern:

Be it known that I, MELVIN W. COTTLE, a citizen of the United States, residing at the city of St. Louis, State of Missouri, have invented a certain new and useful Improvement in Artificial-Fuel Blocks and Processes of Producing Same, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in artificial-fuel blocks and processes of producing same, the object being to produce a clean and easily-made fuel-block which can be readily handled and has the general properties of hard coal.

To these ends and also to improve generally upon articles and processes of the character indicated the invention consists in the various matters hereinafter described and claimed.

The present fuel-block can be of any convenient size and shape and contains the following ingredients: coal-slack, eighty-five per cent.; pine sawdust, eight per cent.; rosin, five per cent.; glue, two per cent.

In the manufacture of the present block the coal is crushed and is mixed with the sawdust, rosin, and glue. This mass is then subjected to heat in order to cause the glue to thoroughly mix with the other ingredients and to bring the various ingredients into the best condition for causing the glue to adhere to the particles, and a proper quantity of the mass is then molded into a block. The beforementioned mass is preferably heated by means of steam at a temperature of about 250° introduced into the mass, and the blocks are produced by subjecting them to great pressure, preferably of about four thousand pounds, so that the resultant block of artificial fuel is extremely hard. The steam at 250° is of course what is known as "dry" steam, so that drying out of the finished block becomes unnecessary. This hard block is clean and readily withstands handling and transportation. Furthermore, the hard block burns substantially as does hard coal. The block burns from the outside and does not fall apart, and substantially the whole of the block of fuel is consumed in burning, there being no clinkers and practically no ashes. The present fuel also gives off no smoke while burning.

Any grade of coal can be employed in the manufacture of the present fuel.

The sawdust affords a porous material which becomes thoroughly saturated with the glue or binding agent and fills the interstices between particles of coal, whereby this glue-saturated sawdust serves to firmly bind the coal particles together, very much as these particles would be held together if they were stuck in a lump of putty. The rosin, which permeates the mass, assists in the kindling of the block and quickly fuses and burns out when the block is kindled, thus leaving pores or passages for gas and air, whereby combustion is promoted.

I am aware that minor changes in my fuel and process of producing same can be made and substituted herein without in the least departing from the nature and principle of my invention.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. An artificial-fuel block comprising comminuted coal, sawdust, rosin, and glue, intimately mixed with each other and in a solid cohesive mass; substantially as described.

2. An artificial-fuel block, comprising comminuted coal eighty-five per cent., sawdust eight per cent., rosin five per cent., and glue two per cent., intimately mixed with each other and in a solid cohesive mass; substantially as described.

3. The process of producing artificial-fuel blocks, which consists in mixing comminuted coal, sawdust, rosin, and glue, introducing steam into the mixed mass, and then molding the mixture while hot; substantially as described.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 24th day of July, 1903.

MELVIN W. COTTLE.

Witnesses:
GEORGE BAKEWELL,
G. A. PENNINGTON.