

UNITED STATES PATENT OFFICE.

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ARTIFICIAL FUEL.

SPECIFICATION forming part of Letters Patent No. 706,533, dated August 12, 1902.

Application filed May 2, 1902. Serial No. 105,687. (No specimens.)

To all whom it may concern:

Be it known that I, GEORGE M. DALLAS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Artificial Fuel; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain new and useful improvements comprised in the production of a cheap and convenient form of fuel; and it consists of a certain novel process of treatment, as will be hereinafter fully described and claimed.

The object of my invention is to produce a cheap and convenient form of fuel from a combustible substance which is now completely lost, and therefore wholly unutilized, as I am able to form in compact or solid condition briquets or billets from what is commonly termed "slack" or "culm" or the pulverized portion or dust from hard or lump soft coal which is a by-product or incidental result of coal-mining.

I am able to take a cheap form of coal and first pulverize it, which may be used alone or in combination with a less combustible form of coal-dust, culm, or the like, as will be readily understood, and my process of manufacturing briquets or the like from this form of substance may be stated to be as follows: I first take pulverized coal—as slack, culm, or the like—and raise the temperature thereof in a suitable oven to the point of ignition, or the temperature thereof may be raised, as by running it through a heated cylinder or tube of suitable size. After having heated to the point of ignition the pulverized coal is discharged into preferably a horizontal cylinder or mixer, when the following ingredients, designed for the purpose of hardening the substance when cool, are added—that is to say, a mixture is added which comprises fifty gallons paraffin residuum, ten pounds of borax, twenty-five pounds of antimony, three pounds acetic acid, twenty-five pounds salt, two hundred pounds clay, one peck oil-cake meal, five pounds potash, all of which is boiled in thirty gallons of water. The proportions of the above ingredients are designed as being sufficient for twenty-five tons of coal. After the said mixture has been thoroughly incorpo-

rated with the coal-dust, briquets or billets of which the fuel may be readily formed by any machine suitable for the purpose.

My improved fuel will be found to be very desirable, inasmuch as it is more durable than anthracite coal, it being easily handled without soiling hands of the user. It will be found that the combustion is perfect, inasmuch as the ingredients incorporated as above will insure that all the gases generated are consumed, and the coal is therefore smokeless, and there will be no clinkers or disagreeable odors. It will be found that it may be readily shipped from point to point without becoming disintegrated, inasmuch as moisture, heat, or cold will not affect it, so as to produce undesirable results. It will also be found that there will be less residuum in the form of ashes and, furthermore, that it may be produced at a minimum cost.

It will be found that any kind of clay being incorporated with compound will form and create satisfactory heat without smoke, soot, or cinders. Four grades of fuel can be produced with this compound, and the crystallization of the different ingredients is caused by the action of the different chemicals one upon the other. Therefore it does not require heavy pressure or adhesive powers to create a hard product; but pressure upon it creates quicker results.

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

The herein-described artificial fuel consisting of first treating the culm or coal-dust to a temperature which will raise it to the point of ignition and afterward mixing the heated dust with a mixture composed of fifty gallons of paraffin residuum, ten pounds borax, twenty-five pounds antimony, three pounds acetic acid, one peck oil-cake meal, two hundred pounds clay, five pounds crude potash boiled in thirty gallons water, twenty-five pounds salt, to twenty-five tons of coal-dust, all combined in the manner specified and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE M. DALLAS.

Witnesses:

HENRY PIKE,
ALBERT A. CAMPBELL.