

# UNITED STATES PATENT OFFICE.

ALFRED DE LENTILHAC, OF TAMAQUA, PENNSYLVANIA.

## IMPROVED ARTIFICIAL FUEL.

Specification forming part of Letters Patent No. 52,397, dated February 6, 1866.

*To all whom it may concern:*

Be it known that I, ALFRED DE LENTILHAC, a subject of the Empire of France, but now residing at Tamaqua, in the county of Schuylkill and State of Pennsylvania, have invented or discovered a new and useful process and composition for making artificial fuel and utilizing therein the fine coal or screenings which at present is regarded as not only valueless, but as an incumbrance; and I do hereby declare that the following is a full, clear, and exact description of the same, first premising that I am aware that many attempts have been made to utilize and burn culm, or fine coal, and that it has been essayed to mix it with coal-tar and press it into bricks or lumps and then dry them in ovens.

The best evidence that all these attempts have been fruitless and resulted in nothing beneficial or useful is in the fact that no cheap artificial fuel of this or indeed of any other kind is to be found in the market, and the acres of culm, or fine coal, still accumulates and has no value.

My invention consists partially in the process and partially in the composition by which I make the artificial fuel in question, and may be stated as follows: First, the clean coal-dust is reduced to a fine condition by rolling, crushing, or grinding; second, this fine coal-dust is mixed with a liquid paste or gluten; third, from four to six per cent. in weight of hot coal-tar is then added to the mixture; fourth, this pasty composition is then pressed into blocks, bricks, or lumps by heavy pressure and then taken out and dried in the open air or in heated apartments or ovens; fifth, when dried, the bricks or blocks are put into sheet-iron or other metal boxes, hermetically sealed or closed, and baked in a hot oven for three or four hours, or until it partakes of the nature of coke.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same as I have successfully practiced it.

I first sift the coal-dust, (preferring that of the anthracite or hard coal,) so as to separate the slate and other crude matter from it. The clean coal-dust is then reduced to a fine condition by passing it between rollers or in any

other manner. The pulverized or comminuted coal-dust is then mixed with a liquid composed of about ninety-eight parts of water and about two parts of vegetable gluten, and in weight equal to about one-tenth of the weight of the coal-dust that is to be mixed with it. To this composition is then added from four to six per cent. in weight of hot coal-tar, well mixed in with it and forming a pasty mixture. The pasty mixture above described is put into molds of any suitable form and size and submitted to heavy pressure sufficient to give it the firmness or solidity that will hold it together while being removed and placed on hurdles or driers, where the bricks or blocks remain for one or two days until dried. The dried bricks or blocks are then placed in sheet or other iron boxes, hermetically closed, and put into a cooking-oven, where they are baked from three to four hours, and when taken out and cooled the fuel is ready for use.

In this process the sulphur and iodine are driven off and the fuel is nearly pure carbon, and may be termed "coke from anthracite coal," which is a new product from that kind of coal.

The fuel thus made is hard, firm, and compact, not friable, and throws off no smoke or gas, and leaves no residuum in burning but clean ashes. It can be handled without soiling the hands, and is particularly useful in making or refining iron, as it does not make slag or clinker or run down into a solid mass, through which it is difficult to drive a blast of air to promote combustion. Being divested of all of its injurious properties, this fuel will not burn out grates, stoves, and furnaces, as crude coal will do.

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

An artificial fuel composed of fine coal-dust, vegetable gluten, and coal-tar, pressed into bricks or blocks, dried, then placed in hermetically-sealed iron boxes and baked or coked in a hot oven, substantially as and for the purpose described.

A. DE LENTILHAC.

Witnesses:

A. B. STOUGHTON,  
J. F. GIRARD.