

# UNITED STATES PATENT OFFICE.

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## FUEL PRODUCED FROM LIGNITE.

SPECIFICATION forming part of Letters Patent No. 465,249, dated December 15, 1891.

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*To all whom it may concern:*

Be it known that I, ALBERT EDELMANN, a subject of the Queen of Great Britain, residing at Austin, in the county of Travis and State of Texas, have invented and discovered a certain new and useful process by means whereof first-class excellent fuel can be produced from lignite and coal can also be improved, of which the following is a specification.

My invention has for its object the production of an artificial fuel having as its base lignite or natural coal.

In order that those skilled may know how to produce my improved fuel, I will proceed to describe in detail the bodies employed by me and the manner in which they are compounded or amalgamated.

I take the ordinary lignite coal, which, as is well known, has in its natural state little or no combustible property, and I first subject it to the action of heat in drying-rooms to dissipate any moisture contained in the lignite, and for this purpose I raise the temperature in such drying-rooms to about 150° Fahrenheit, and after the lignite has become thoroughly dried in this way I convey it to cylindrical revolving ovens and subject it to a heat of from 400° to 500° Fahrenheit, agitating the contents of the oven in any suitable manner, but preferably by revolving said ovens, the degree of heat employed at this step ranging from 400° to 500° Fahrenheit, and for a period of about thirty minutes, such treatment liberating all sulphur and other impurities contained in the lignite. After the coal has been thus treated it is then ground by any suitable machinery to a fine powder, and to this coal-powder I then add from five to ten per cent. of a composite body composed of Russian chesk, a product of the pine of Russia and other countries, white bark from the brazos tree of Russia and other countries, zevietsa, a kind of gum found in Europe, camomile, the leaf or bark of the eucalyptus, cobra, and bitumen. These bodies or ingredients are incorporated with each other in the percentages of forty, fifteen, fifteen, five, five, ten, and ten, respectively, and when thoroughly incorporated they are ground to a fine powder, and when so ground ten per cent. of such powder, as hereinbefore stated, is added to the ground lignite, the two powders being in-

timately mixed through the medium of any suitable mixing machinery, and when so mixed compressed into any suitable-sized "briquettes," and it is then in condition for burning purposes, the pressure usually employed for producing the "briquettes" ranging from fifty to two hundred tons according to the degree of density desired.

I have described the employment of lignite coal and the ordinary combustible coal as substantial equivalents constituting the foundation of my improved artificial fuel, because in the first instance I invest the lignite with combustible properties and in the second instance intensify the natural combustible properties.

The artificial fuel resulting from the admixture of the several bodies named gives, when ignited, a very intense heat and produces a blue flame. Little or no smoke is produced, and the fuel is almost entirely consumed, leaving only about from one to two per cent. of ashes and no clinkers whatever. Such fuel can be used in any place where either a moderate or intense heat is required, it being capable of producing 3,000° of heat, and gas may be generated from it.

While I have given such definite proportions as I have used with practical success, it will be understood that they may be slightly varied according to the varying conditions of the several bodies named and the experience acquired in manipulation. For instance, a greater proportion of the bodies mixed with the powdered lignite would be necessary than would be the case when ordinary coal is employed as the foundation.

What I claim as new, and desire to secure by Letters Patent, is—

An artificial fuel composed of lignite coal or ordinary combustible coal ground to powdered form and mixed with a powder composed of Russian chesk, white bark from the brazos tree, zevietsa, camomile, the leaf or bark of the eucalyptus, cobra, and bitumen in the proportions named and compressed into briquettes, substantially as hereinbefore set forth.

ALBERT EDELMANN.

Witnesses:

C. H. MILLER,  
E. B. HANCOCK.