

# UNITED STATES PATENT OFFICE.

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## COMBUSTIBLE COMPOUND.

1,285,208.

Specification of Letters Patent.

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No Drawing.

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*To all whom it may concern:*

Be it known that I, WILLIAM JOITE, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Combustible Compounds, of which the following is a full, clear, and exact description.

The object of this invention is to provide a combustible compound which may burn readily and give off a large amount of heat for the volume of the fuel consumed, may be capable of being cheaply manufactured, easily handled and without waste and adapted to be conveniently stored.

To accomplish the above objects, I provide a new composition of matter composed of a number of combustible ingredients, each of which burn less readily and efficiently by themselves than when forming a part of my mixture. These elements form a composite article, essentially the result of mechanical mixture, combined principally by a physical process and made into blocks whereby they may be readily handled and stored and be capable of being stacked most effectively for burning in any suitable heating apparatus. The shape and size of the blocks preferably corresponds to an ordinary building brick, which I find very convenient for domestic use in house heating furnaces, although the blocks may be made of any suitable size for commercial use, and they may be given various shapes, particularly adapting them for combustion in furnaces used in industrial arts.

The composition preferably comprises an earth base or binder, bituminous coal, preferably crushed or powdered, finely crushed or powdered coke, and a small amount of hydro-carbon in the form of a crude mineral oil. These ingredients are mixed into a plastic mass, by the application of a small amount of water, formed into the blocks of the desired shape and allowed to dry.

The earth base or binder may be any common earth having the property of being plastic and tenacious when wet and having a cohesive property when dry. I have found that ordinary clay, such for example, as blue clay found near the surface in the vicinity of Cleveland, Ohio, is well adapted for this purpose.

The bituminous coal may be of any of the grades commercially known as the poorer

grades, although obviously a higher grade of coal may be used if desired. I have found, however, that coal which ordinarily leaves a large residue, burning with difficulty and requiring forced draft, may be burned very completely and leave but small residue when used in this mixture. Anthracite may be used equally well in the mixture, but as it is one of the objects of the invention to provide an economical fuel, I find no particular advantage in using the higher and more expensive grades of anthracite, such as graphitic anthracite or semi-bituminous material.

The coke may be of any commercial grade (a hydro-carbon from which the volatile constituents have been removed) crushed into comparatively small particles approximating a dust or coarse powder.

The hydro-carbon in the form of a crude mineral oil is added to facilitate continuous and even combustion, and may be used in comparatively small quantities, any per cent. desired. When my fuel is to be used for some purposes this crude oil may be entirely omitted.

By way of example, the following percentages of the respective mixtures are given, although it is to be understood that these may be materially varied without departing from the spirit of my invention:

Earth base of binder	22%	
Bituminous coal	25%	
Coke	50%	
Hydro-carbon oil	3%	90

From the foregoing description, it will be seen that I have provided a combustible compound made up largely of materials not readily consumed in ordinary heating devices and which may be made into blocks, conveniently handled without waste and adapted to be stacked or arranged in a furnace to burn for long periods without attention. My composition is capable of efficient combustion, leaving but a comparatively small residue in the form of a dry powder conveniently removable from the furnace and in no way interfering with the combustion.

Having thus described my invention what I claim is:—

1. A combustible composition, consisting of an earth binder, crushed bituminous coal and crushed coke, the latter substance com-

prising substantially half of the composition.

2. A combustible mixture, consisting approximately of one-half crushed coke and 5 substantially one-quarter crushed bituminous coal, hydro-carbon oil and earth binder, the hydro-carbon oil forming a very small part of the mixture.

3. The combination in a combustible mixture, of crushed coal, crushed coke, hydro- 10 carbon oil and an earth binder, combined in

substantially the proportions set forth in the specification.

4. A combustible composition consisting of clay substantially twenty-two per cent. by 15 bulk, bituminous coal in pulverulent form twenty-five per cent. by bulk, coke dust fifty per cent. by bulk, and hydro-carbon oil three per cent. by bulk.

In testimony whereof, I hereunto affix my 20 signature.

WILLIAM JOITE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."