UNITED STATES PATENT OFFICE.

CHARLES E. HITE, OF BURLINGTON, NEW JERSEY, ASSIGNOR TO UNIVERSAL BRIQUETTING COMPANY, A CORPORATION OF DELAWARE.

METHOD OF TREATING COAL.

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To all whom it may concern:

Be it known that I, CHARLES E. HITE, a citizen of the United States, residing at Burlington, in the county of Burlington and State of New Jersey, have invented a new and useful Method of Treating Coal, of which the following is a specification.

My invention relates to an improved method or process of briqueting coal, culm or similar material. My object is to provide an improved method of associating the binder with the coal and making the same of maximum efficiency. The method is especially adaptable in treating semi-bituminous and anthracite coals.

A specific form of my method will be described as follows:—

To one ton, for example, of fine dry culm or coal, I first add from five to fifty or more gallons of crude petroleum oil, or the residue from the refining of such oil. I thoroughly mix the oil and coal, in a mechanical mixer, and then subject the same to a temperature of about 400° F. for ten or fifteen minutes. This causes a close affiliation between the coal particles and the oil. I then add about thirty gallons, more or less, of water to said coal and oil mixture and thoroughly mix the same. The mixture is then ready for the briqueting press. If the culm or coal is not sufficiently dry to permit the material to combine readily with the oil, it should first be subjected to a temperature sufficient to drive off the moisture.

After the briquets are made, they are then subjected to a temperature of from 500° F. to 600° F., until a hard crust is formed on the surface of the briquets or the heating action may be continued until a uniform hardness extends throughout the briquets as desired.

I find this method produces a briquet which is impervious to water, even when completely submerged for months, and that the briquet is also sufficiently hard and durable to stand rough usage or handling.

I have found that the crude oil petroleum mixed with the coal alone will not form a substance that will stand briqueting, but by the addition of water to this mixture, the grease, paraffin or asphaltum, or similar element of the oil becomes stiff, which enables it to bind or hold the particles of the coal together until the mass has reached the baking ovens where the process is completed.

In the use of the words crude petroleum in the claims, I mean to include any suitable equivalent thereof, such for example as the residue from refining crude petroleum oil.

What I claim is:—

1. The method of treating dry pulverized coal, culm or similar material, which consists in first mixing the material with a crude petroleum oil, heating the mixture to cause a close affiliation of the components, and afterward mixing water therewith.

2. The method of treating pulverized coal, culm or similar material, which consists in first subjecting said material to a temperature sufficient to drive off the moisture, then mixing with said material a crude petroleum oil, heating the mixture to cause a close affiliation of the components, then adding to said mixture a sufficient quantity of water to stiffen the grease to render the oil constituent sticky or gummy.

3. The method of treating dry pulverized coal, culm or similar material, which consists in first mixing with said material crude petroleum, heating the mixture to cause a close affiliation of the components, then mixing therewith cold water to stiffen the mass, forming the mass into briquets while stiff, and then subjecting the same to heat.

4. The method of treating pulverized coal, culm or similar material, which consists in first subjecting said material to a temperature sufficient to drive off moisture, then mixing with said material a crude petroleum oil, then subjecting the mixture to a temperature of approximately 400° F., then adding to the mixture sufficient water to stiffen the grease, paraffin, asphaltum, or similar element of the oil, then forming the mass into suitable blocks or briquets and subjecting the same to a temperature of from 500° to 600° F.

CHARLES E. HITE.

Witnesses:
MAE HOFMANN,
HOWARD S. OKIE.