

UNITED STATES PATENT OFFICE.

WALTER S. WILKINSON, OF WYTHEVILLE, VIRGINIA.

PROCESS OF PRODUCING BITUMINOUS BINDERS AND COMPOSITIONS.

No. 915,260.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WALTER S. WILKINSON, a citizen of the United States, residing at Wytheville, in the county of Wythe and State of Virginia, have invented an Improvement in Processes of Producing Bituminous Binders and Compositions, of which the following description, in connection with the accompanying drawings, is a specification.

My invention relates to the process of producing bituminous binders and compositions.

In the making of such briquets, it is common to mix the coal or other body material with a cementitious agent, usually one of the bitumens, for the purpose of uniting the particles of body material in condition for use, and it is of course essential for the best results that this binder be distributed as completely and uniformly as possible throughout the mass, in order that it may serve most efficiently as a binder and also in order that the smallest possible amount of binder be required, because it is usually the most expensive element of the mass.

Heretofore it has been common in the making of such briquets to mix the bitumen in a liquid condition with the comminuted body material, such as coal, but it has been found impossible fully or uniformly to distribute a liquid bitumen through a mass of comminuted solid material such as coal. It has also been attempted to mix the bitumen in a hard and dry state with the comminuted body material, but here again it has been found impossible to obtain a thorough and uniform dry mixture of the particles, while by both of these methods a larger percentage of binder is necessary to make a good briquet than by my process.

My invention comprehends the introduction of the cementitious agent or bitumen in a solid state, but using, however, a liquid vehicle as a means for distributing the solid particles fully and uniformly throughout the mass of body material.

In carrying out my invention I employ coal tar pitch, water gas pitch, or any similar or equivalent bitumen bearing cementitious solid, and by grinding or otherwise I subject the same to an enforced mixing in a finely comminuted state with water or some other liquid in which it is not soluble. In this manner, I form a fluent mixture which may be handled with all the facility and advantage of a liquid, but which nevertheless bears the cementitious material in a solid though

very finely divided or comminuted condition.

The body material, for instance, coal in a sufficiently comminuted condition, is now mixed in any suitable manner with this fluent cementitious mixture, or the said cementitious mixture may be incorporated with the comminuted body material in any suitable or desired manner. I have found the usual pug mill sufficient for this purpose, and after the body material and cementitious mixture have been thoroughly incorporated or mixed, it will be found that the particles of pitch, (that is to say, the solid cementitious particles) have been carried by the water or other vehicle completely and uniformly throughout the entire mass of body material, being deposited in the smallest and most minute interstices between the particles of body material and to an extent and with a uniformity that has been quite impossible with the methods or processes heretofore commonly used or known to me.

In making an ordinary coal briquet I have found that from $3\frac{1}{2}\%$ to 4% of bitumen as compared with the body material have produced excellent results, although of course this proportion may be varied more or less according to the usual varying conditions.

I have been able by my process to produce commercial briquets with from 5% to $5\frac{1}{2}\%$ of coal tar pitch that contains 66% of bitumen, so that the resulting briquet contains only from 3.3% to 3.63% of bitumen.

The fluent mixture produced as above stated by grinding the pitch in water is apparently a permanently fluent mixture. I have found two or more parts of water to one part of bitumen or bitumen bearing material to produce excellent results. A small percentage of lime may be added to the fluent mixture to contribute greater strength where necessary or desired, or any other equivalent or suitable material for the purpose.

After the body material has been sufficiently and properly mixed with the cementitious mixture, the resultant mass may be stored or accumulated before being further treated, or it may be at once heated to evaporate or dispose of the liquid which was employed merely as a vehicle for the distribution of the cementitious agent throughout the body material and to melt the particles of pitch. After this has been done, the mass is then pressed into desired form for commercial

cial use, and under such pressure or other conditions as may be necessary to fit it for that use.

The binder made by the process herein claimed may be used for any other purpose than the making of briquets, for which it may be found suitable, hence the process herein claimed for making binders may be of general application.

10 Claims.

1. The process of making coal or other briquets which consists in mixing a bitumen bearing cementitious solid in a finely comminuted state with a liquid wherein it is not soluble to form a fluent mixture; intimately mixing the same with comminuted briquet material and then drying, heating and pressing the resultant mixture.

2. The process of making coal or other briquets which consists in grinding pitch in a liquid such as water to form a fluent mixture, intimately incorporating said mixture with comminuted briquet material, thereby dis-

tributing said ground pitch, in its solid state, throughout the briquet material; and drying, heating and pressing the resultant mixture.

3. The process of making a binder, which consists in comminuting and mixing a bitumen bearing cementitious solid in and with a liquid wherein it is not soluble, thereby to produce a fluent mixture containing said cementitious material in a solid state for distribution-purposes.

4. The process of making a binder which consists in grinding pitch in water to such a degree of fineness as to produce a fluent pitch containing mixture which may be readily distributed.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

WALTER S. WILKINSON.

Witnesses:

FRED GORLICH,

KATHARINE A. RILEY.