

UNITED STATES PATENT OFFICE.

JULIUS J. CZEPULL, OF LANCASTER, PENNSYLVANIA, ASSIGNOR, BY
DIRECT AND MESNE ASSIGNMENTS, TO CARBON-RAY COAL COM-
PANY, A CORPORATION OF PENNSYLVANIA.

ARTIFICIAL FUEL.

No. 845,337.

Specification of Letters Patent.

Patented Feb. 26, 1907.

Application filed June 23, 1906. Serial No. 323,177.

To all whom it may concern:

Be it known that I, JULIUS J. CZEPULL, a subject of the Emperor of Germany, residing at Lancaster, Pennsylvania, have invented certain new and useful Improvements in Artificial Fuel, of which the following is a specification.

It is the object of my invention to provide an effective binder for use in the making of 10 briquets from anthracite coal-dust, commonly called "culm" or "slush," but constituting the fine carbon particles which up to the present time is absolute waste and has never been utilized. Many attempts have 15 been made to secure a binder for this material, but so far as I am aware no binder has been produced which has been found to be sufficiently cheap in purpose, or which would withstand exposure to the elements without 20 disintegration, or which would withstand the effect of combustion without falling to pieces.

It is the aim of my invention to produce a binder which shall, first, be economical and 25 which will enable me to manufacture briquets from this waste product at a cost which will make it very much cheaper than the expense of mining the coal; secondly, the binder I have produced is not affected by 30 water and may therefore be exposed to the elements without detriment or any danger of disintegration, and, finally, the briquet made of the particles of coal-dust secured together by my binder will burn without falling apart 35 and until every particle of the briquet has been consumed. The importance of an efficient binder for the purpose described cannot be overestimated, in view of the fact that millions of tons of this waste coal-dust 40 is now to be found in the coal regions, and

this waste is being added to out of every ton of coal mined.

In carrying out my invention I take five pounds of starch and reduce this in warm water to a paste. To this I add three 45 pounds of glue which has been previously dissolved in about five quarts of water and boil the two together. To this mixture I slowly mix five pounds of slaked lime and boil the whole together. I then add to the 50 mixture one quart of boiled linseed-oil and stir this thoroughly with the whole. This quantity of the binder is sufficient to make up a ton of the culm or waste coal-dust, and I mix the binder with the coal-dust very 55 thoroughly and then press the resultant mixture into the form of briquet in a suitable press. I prefer to let the briquets stand for from twenty-four to forty-eight hours, so that they become thoroughly set, though 60 they may be used at once.

What I claim is—

1. A binder for coal-dust consisting of starch, glue, slaked lime and linseed-oil mixed thoroughly together in the presence of 65 heat and afterward incorporated with the coal-dust in substantially the proportions stated.

2. A composition of matter composed of coal-dust bound together by the binding ma- 70 terial consisting of starch, glue, slaked lime, linseed-oil, in substantially the proportions specified.

In testimony whereof I affix my signature in presence of two witnesses.

JULIUS J. CZEPULL.

Witnesses:

D. F. N. COP,
EDW. R. HEITSHU.