

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.

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To all whom it may concern:

Be it known that I, JULIUS J. CZEPULL, a
subject of the Emperor of Germany, resid-
ing at Lancaster, Pennsylvania, have invented
5 certain new and useful Improvements in Ar-
tificial Fuel, of which the following is a speci-
fication.

It is the object of my invention to provide
an effective binder for use in the making of
10 briquets from anthracite coal-dust, com-
monly called "culm" or "slush," but con-
stituting 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 mate-
rial, 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 bri-
quets from this waste product at a cost which
will make it very much cheaper than the ex-
pense 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.