

# UNITED STATES PATENT OFFICE.

EBENEZER BURGESS WARREN, OF PHILADELPHIA, PENNSYLVANIA.

## IMPROVEMENT IN ARTIFICIAL FUEL.

Specification forming part of Letters Patent No. **220,321**, dated October 7, 1879; application filed April 14, 1879.

*To all whom it may concern:*

Be it known that I, EBENEZER BURGESS WARREN, of the city and county of Philadelphia, in the State of Pennsylvania, have invented a new and useful Improvement in Artificial Fuel, of which the following is a specification.

It is found that the lumps of artificial fuel made of anthracite or bituminous coal dust and the ordinary coal-tar pitch are somewhat brittle, and lose in bulk by handling and transportation. To avoid this is the object of my invention; and the nature of the invention consists in the mixing of a composition obtained by dissolving ordinary coal-tar pitch with petroleum-tar, or wax-tailings, in the proper proportion to produce the required consistency with culm, which is commonly known by the name of "coal-dust." The said compo-

sition holds the coal-dust together much more tenaciously than the ordinary coal-tar pitch.

The proportions I have usually taken are about ninety parts of coal to ten parts of the composition.

I do not, however, confine myself to these proportions, as other proportions will answer the purpose.

I claim as my invention—

The compound obtained from the mixing of coal-tar pitch and petroleum-tar, or wax-tailings, in combination with either anthracite or bituminous culm, commonly known by the name of "coal-dust," in the manufacture of artificial fuel, substantially as set forth.

E. BURGESS WARREN.

Witnesses:

THOMAS J. BEWLEY,  
STEPHEN USTICK.