

# UNITED STATES PATENT OFFICE.

PAULINE GRAYSON, OF LONDON, ENGLAND.

## ARTIFICIAL-FUEL PROCESS AND PRODUCTION.

No. 863,028.

Specification of Letters Patent.

Patented Aug. 13, 1907.

Application filed December 17, 1906. Serial No. 348,315.

To all whom it may concern:

Be it known that I, PAULINE GRAYSON, a citizen of the United States of America, residing at 87 Victoria street, London, S. W., England, have invented certain  
5 new and useful Improvements in Artificial-Fuel Process and Production, of which the following is a specification.

This invention relates to the production of artificial fuel from cheap material, the object being to produce  
10 a hard fuel capable of resisting without fracture the rough handling incident to transportation and also a fuel of high heat efficiency which disintegrates very slowly during combustion.

In carrying the invention into effect in one convenient way, it is found convenient to use the following ingredients, approximating to the proportions indicated, and to follow the sequence of operations described.

To one pound of coal dust is added from one quarter  
20 to an ounce of cement, lime or like binding material, and from three quarters to two ounces of tar (preferably pyroligneous) or the equivalent thereof—pyroligneous pitch. These ingredients are then thoroughly mixed with a squeezing or other suitable motion.  
25 When this has been properly effected, about one twentieth part of an ounce of oil preferably mineral is added, after further mixing about one twentieth part of an ounce of plaster of paris is stirred in, one half to two ounces of water, sometimes lime water, being added.

30 The squeezing or other suitable process of mixing is then continued, until the material is ready for pressing into any desirable shape.

Sometimes when the fuel is to be used for certain purposes, it may be subjected to a heating process for  
35 volatilizing all the volatile matter.

It is found that the foregoing proportions and treatment are very suitable for anthracite coal dust. The amount of cement or the like may be varied according to the nature of the various other ingredients employed and the fineness of the coal dust.  
40

Sometimes both cement and lime, or as stated above, either one or the other, may be used.

It is to be understood that the above described sequence of operations and proportions of ingredients need not be rigidly adhered to, but that the same may  
45 be varied in accordance with the nature and condition of the ingredients employed and the general convenience of manufacturers.

Having now described my invention what I claim as new and desire to secure by Letters Patent is:—  
50

1. An artificial fuel consisting of the following ingredients in combination and substantially in the proportions specified; coal dust, preferably anthracite, binding material and pyroligneous tar.

2. An artificial fuel consisting of the following ingredients in combination, and substantially in the proportions specified; coal dust, preferably anthracite, binding material, pyroligneous tar, (preferably) mineral oil and plaster of paris.  
55

3. An artificial fuel consisting of the following ingredients in combination, and substantially in the proportion specified: coal dust, preferably anthracite, cement, pyroligneous tar, (preferably) mineral oil, plaster of paris and water.  
60

4. An improved artificial fuel, the ingredients of which comprise in combination, 1 lb. coal dust,  $\frac{1}{4}$  to 1 oz. of cement,  $\frac{3}{4}$  to 2 oz. of tar,  $\frac{1}{16}$  oz. of oil,  $\frac{1}{16}$  oz. of plaster of paris,  $\frac{1}{2}$  to 2 oz. of water.  
65

5. An improved artificial fuel, the ingredients of which comprise in combination, 1 lb. coal dust,  $\frac{1}{4}$  to 1 oz. of cement,  $\frac{3}{4}$  to 2 oz. of pyroligneous pitch,  $\frac{1}{16}$  oz. of oil,  $\frac{1}{16}$  oz. of plaster of paris,  $\frac{1}{2}$  to 2 oz. of lime water.  
70

6. Process for manufacturing artificial fuel consisting in mixing together coal dust, cement and tar with a squeezing motion, then adding oil, and after further mixing stirring in plaster of paris and water, and after another squeezing treatment pressing the material into any desired shape, with or without being exposed to heat.  
75

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

PAULINE GRAYSON.

Witnesses:

ALBERT E. PARKER,  
FRANCIS J. BIGNELL.