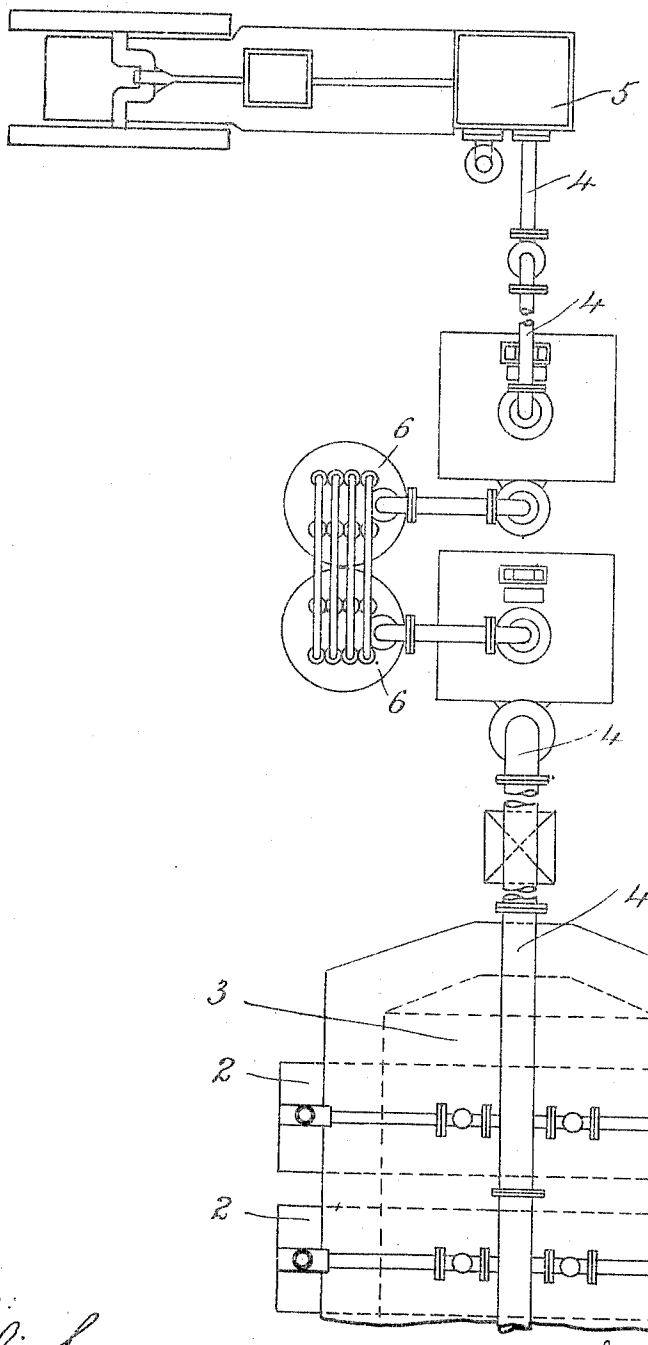
F. W. BURSTALL & W. G. MOORE.

TREATMENT OF CARBONACEOUS SUBSTANCES.

APPLICATION FILED JULY 15, 1911.

1,068,314. Patented July 22, 1913



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UNITED STATES PATENT OFFICE.

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TREATMENT OF CARBONACEOUS SUBSTANCES.

1,068,314. Specification of Letters Patent. Patented July 22, 1913.

Application filed July 15, 1911. Serial No. 638,683.

To all whom it may concern:

Be it known that we, FREDERIC W. BURSTALL and WILLIAM GEORGE MOORE, subjects of the King of Great Britain and Ireland, and residing at Birmingham, in the county of Warwick, England, have invented a new and useful Process for the Treatment of Carbonaceous Substances, of which the following is a specification.

This invention relates to the manufacture of coke from coal by distillation, and it consists in a novel process for accomplishing such distillation as hereinafter fully described and claimed, and whereby a coke of exceptional purity is produced.

The drawing shows a diagram or plan view of one form of apparatus used in carrying out this invention.

The coal or other carbonaceous material to be converted into coke is placed in one or more retorts 2 preferably formed of metal, and inclosed in a heating furnace 3 of any approved construction. The retorts are sealed against the entrance of air at all points, and are connected to an outlet pipe 4. This outlet pipe is operatively connected with an air-pump or exhauster 5 of any approved construction, and 6 are stills of approved construction interposed between the retorts and the air-pump and connected to the pipe or pipes 4. These stills are used for removing the by-products from the gases which are driven out from the retorts.

The retorts are heated by the furnace to a temperature of from 850° centigrade to 1000° centigrade, and the air-pump is run so as to maintain a partial vacuum in the retorts and their outlet pipe or pipes of from 12 to 20 inches of mercury considering atmospheric pressure of 30 inches of mercury. The retorts are maintained under these conditions until all the carbonaceous matter has been converted into coke. When the carbonaceous material is treated in this manner a remarkably pure coke is obtained, said coke being free from volatile organic sulfur. This coke is valuable in the arts, more especially in melting and in certain metallurgical processes in which the use of a very pure coke is essential. The tar obtained is paraffinoid in nature, and contains hexa-hydrids and other compounds not found in ordinary coal tar. By the term "hexahydrids" is meant a class of cyclic hydrocarbons found in Russian petroleum of which a well known example is hexamethylene. The tarry product further differs from coal tar in containing but little naphthalene or aromatic hydrocarbons. The temperature of the retort may be varied to suit different kinds of material, but it must not be allowed to fall below 850° centigrade, otherwise some undesirable impurities will remain in the coke. The vacuum also must not be allowed to fall below 20 inches of mercury, otherwise all the impurities will not be removed from the coke.

What we claim is:

A process for treating carbonaceous material, which consists in heating the carbonaceous material to be treated in a closed vessel to a temperature of from 850° to 1000° centigrade, and under a vacuum of from 12 to 20 inches of mercury, considering atmospheric pressure as 30 inches of mercury.

In witness whereof we have hereunto set our hands in the presence of two witnesses.

FREDERIC WILLIAM BURSTALL.
WILLIAM GEORGE MOORE.

Witnesses:
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