Patented Apr. 10, 1928. 1,665,665

UNITED STATES PATENT OFFICE.

KURT JAHNKE, OF LUDWIGSBURG, GERMANY.

PROCESS FOR PRODUCING A HARD LOW-TEMPERATURE COKE.

No Drawing. Application filed October 19, 1926, Serial No. 142,774, and in Germany May 2, 1924.

The half-coke heretofore technically produced can only find industrial use when made into briquets or when utilized in a coal dust furnace since, due to its brittle and fragile characteristics, it is practically impossible to transport it or to move it, even though the distance is small. These disadvantages have been overcome by means of the following process.

The crushed and pulverized spongy iron ore, as for instance, crystallized ferrocarbonate, $FeCO_3$, which can be used as it is mined or it can be produced chemically, is mixed with a bituminous material such as tar, coal tar, brown coal tar, etc. Instead of the ferrocarbonate, other compounds can also be used which will easily react at low-coking temperatures and instead of the tar, also pitch of the compounds mentioned can be used as well as colophony or similar substances which will yield a residue during distillation.

This mixture is then introduced into the pulverized fuel after which an intimate and homogeneous mixing of the materials is effected. Thereafter the fuel together with the admixed substances is subjected to the usual low temperature dry carbonization process wherein a temperature of approximately 500° C. is utilized and the necessary carbonization time of approximately 12 to 18 hours is adhered to.

The addition of $FeCO_3$ and tar, as specified, varies, depending upon the specific fuel used, the amount of ferrocarbonate varying between 1% to 10% and tar between 1% to 10% by weight of the fuel.

The sphere of use of the coke produced by this process can be extended to include all industries and particularly metallurgical industries, since the coke is hardened to such an extent, that it withstands the pressure of the blast furnace and is more easily combustible, and furthermore, the added substances do not interfere.

The added substances admixed with the fuel are all equally essential, that is, the ferrocarbonate is as essential as the tar, since it has been proven by experiments that the ferrocarbonate acts as a hardening agent and the tar as a binding agent.

Coal is the specific fuel used and by that term is included anthracite, bituminous and lignite coals.

I claim as my invention:

1. A process for producing hard low temperature coke which comprises the steps of mixing a pulverized coal with a mixture of pulverized ferrocarbonate and a bituminous material; and subjecting this mixture to low temperature carbonization.

2. A process for producing hard low temperature coke which consists in the steps of mixing ferrocarbonate with tar; mixing this mixture with a pulverized coal; and subjecting the second mixture to low temperature carbonization.

3. A process for producing hard low temperature coke which comprises the steps of mixing a pulverized coal with a mixture of pulverized ferrocarbonate and a substance which will yield a residue upon distillation; and subjecting this mixture to low temperature carbonization.

4. A process for producing hard low temperature coke which comprises the steps of mixing a pulverized coal with a mixture of pulverized crystallized ferrocarbonate and coal tar; and subjecting this mixture to low temperature carbonization.

In testimony whereof I affix my signature.

KURT JAHNKE.