UNITED STATES PATENT OFFICE.

ALBERT CAMPBELL, OF CHICAGO, ILLINOIS.

FUEL.

SPECIFICATION forming part of Letters Patent No. 624,173, dated May 2, 1899.

Application filed February 20, 1899. Serial No. 706,192. (No specimens.)

To all whom it may concern:

Be it known that I, ALBERT CAMPBELL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Fuel; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The use of coke as a fuel is comparatively limited. In fact, it can be used with advantage and ease only in such apparatus in which the fuel is fed and properly spread over the grate-surface by hand. The nature of this fuel—namely, its low specific gravity and its jagged and rough surfaces—renders it unfit for use in general, because it is not what may be termed "self-feeding," the interlocking of and the frictional resistance to motion between the lumps or pieces being too great to be overcome by the specific gravity of the fuel, which results in the formation of bridges above the zone of combustion and renders almost constant attention necessary. This is especially the case when coke is used in self-feeding heaters, whether latrobes, steam or hot water, or other self-feeding heaters, the fuel choking in the hoppers. To remedy this serious objection to coke as a fuel, it has been proposed to comminute the same—*i. e.*, break it up into comparatively small pieces, not much larger than ordinary chestnut coal—but this does not in any manner change the nature of the fuel, in that the surfaces thereof remain jagged and rough, so as to render its use undesirable even in heaters having a feed-hopper of comparatively great cross-sectional area and of a comparatively small vertical area, as is the case, for instance, in latrobes.

The object of this invention is to overcome the objectionable structural disadvantages of coke and to produce a coke fuel having smooth outer surfaces, thereby reducing the frictional resistance to motion of such lumps or pieces to a minimum and rendering it self-feeding, as is the case with ordinary hard coal, notwithstanding the low specific gravity of the coke.

In carrying out my invention I take the coke, preferably the harder varieties, and not only remove its jagged edges, which result in the interlocking of the lumps or pieces, but also smooth the entire surface thereof, so as to offer the least possible frictional resistance to motion under their own weight. This I effect by abrasion, friction, or attrition in any suitable apparatus, as the ordinary tumbling-barrel, attrition-mill, or in any other apparatus whereby the object aimed at can be obtained by abrasion, friction, or attrition, such apparatus being well known and forming no part of this invention.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

An improved fuel, consisting of coke the lumps or pieces of which have smooth external surfaces, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

ALBERT CAMPBELL.

Witnesses:
N. CURTIS LAMMOND,
HENRY ORTH, Jr.