

UNITED STATES PATENT OFFICE.

WILLARD BROAD, OF ASHLAND, ASSIGNOR OF ONE-HALF HIS RIGHT TO
CHARLES A. SHAW, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN THE MANUFACTURE OF FUEL FROM COAL DUST AND SLACK.

Specification forming part of Letters Patent No. **150,393**, dated May 5, 1874; application filed
March 14, 1874.

To all whom it may concern:

Be it known that I, WILLARD BROAD, of Ashland, in the county of Middlesex and State of Massachusetts, have invented a certain new and useful Improvement in Fuel, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which my invention appertains to make and use the same.

My invention relates more especially to that class of fuel which is usually pressed or formed into blocks for convenience in burning; and consists in a composition made as hereinafter more fully set forth and claimed, by which the finer particles of coal separated in screening are utilized, and an economical and freely-burning fuel produced.

The extreme simplicity of my invention renders an elaborate description unnecessary.

To prepare my improved fuel, I take unslaked lime or quicklime and slake it in a solution consisting of ten gallons of water and two pounds of carbonate of soda, sufficient lime being used to form a thin paste. After the lime is fully slaked, and while warm, it is thoroughly incorporated with ordinary coal screenings or dust and formed into blocks of convenient size and shape for use, enough only of the lime-paste being employed to cause the particles of coal to adhere and form a mass. The blocks so formed are then dried in any convenient manner, after which they are ready for

use, and may be burned in a grate or furnace in the same manner as ordinary fuel.

From the foregoing the nature and operation of my invention will be readily understood by all conversant with such matters. The lime acts to hold the small lumps of coal and finer carbonaceous particles together, and also as a flux to promote combustion, while the soda not only intensifies the heat given out, but causes the fuel to burn with a high-colored and brilliant flame, rendering it well adapted to open grates.

I do not confine myself to making the fuel thus formed into bricks and drying them, as described, as it may be used in a plastic state or before it is dried, in connection with other fuel already ignited, without departing from the spirit of my invention. Neither do I confine myself to the exact proportions given, as these may be varied considerably, according to the nature of the screenings used, and other qualifying circumstances.

Having thus set forth my invention, what I claim is—

The fuel described, consisting of a compound formed of coal-screenings mixed with lime-paste, produced by slaking lime in a solution of soda, substantially as and for the purpose specified.

Witnesses: WILLARD BROAD.
GEORGE T. HIGLEY,
ALBERT LELAND.