

UNITED STATES PATENT OFFICE.

ALEXANDER K. MURRAY, OF BRADFORD, PENNSYLVANIA.

FIRE-KINDLER.

SPECIFICATION forming part of Letters Patent No. 419,868, dated January 21, 1890.

Application filed June 11, 1889. Serial No. 313,906. (No specimens.)

To all whom it may concern:

Be it known that I, ALEXANDER K. MURRAY, a citizen of the United States, residing at Bradford, in the county of McKean and State of Pennsylvania, have invented certain new and useful Improvements in Fuel for Kindling Anthracite Coal, &c.; and I do 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.

My invention is in the nature of a fuel for kindling anthracite coal or other of the more refractory fuels, and has for its object to furnish such a fuel (in shape of a ball or block) which shall be reliable and easy to use and cheap to manufacture.

My invention will be first fully described hereinafter, and afterward specifically pointed out in the claims.

As is well known, refractory fuel—such as anthracite coal—cannot be kindled with such light highly-inflammable substances as waste paper, straw, shavings, and so forth, in any of the ordinary stoves or heaters now in household use, but must have a kindler which, after first blazing up, will form an ember or coal.

In carrying out my invention I so treat such light fibrous material that it will not be so rapidly consumed when ignited, but will continue to burn for a considerable length of time in the form of a coal or ember, and will thoroughly ignite the hardest and most refractory fuel known to domestic use.

In preparing my fuel I take, say, one gallon of water and mix in it sufficient clay, preferably of the variety known as blue clay, to bring it to about the consistence of cream. I then take a light fibrous material—such as waste paper, straw, (prepared by grinding or bruising to roughen or rid its surface of its glaze or polish,) wood shavings, sawdust, spent tan-bark, &c.—and wet it with this solution. I then pack or lightly press this wet mass into a ball by hand, or into any suitable shape of block in molds or forms, or into a cake to be afterward cut up into proper sizes. This forms a kindler which will be fairly effective for the purposes set forth, the clay which remains on the fiber when dried serv-

ing the first great purpose of my invention, which is to retard the combustion of the light fibrous material. I find, however, that better results can be obtained by adding to the mixture of water and clay, as hereinbefore described, about one pound of the ordinary rough or crude saltpeter to the quantity named, and to treat the fiber with this mixture the same as before set forth. A ball or block of such material will form a good kindler for the purposes named and will burn for a long time, forming in its combustion coals or embers very much like is formed when wood is burned and thoroughly igniting the coal. In order, however, to increase the utility of such ball or block for the purposes named, I sprinkle, wet, or saturate such a block or ball with petroleum when treated with the water and clay mixture or with the water, clay, and saltpeter mixture. The ball will take up a considerable quantity of oil, and its parts being closely packed and held together the capillary attraction thereof will retain the oil and prevent its rapid evaporation, and very little of the oil will be actually absorbed by the fibrous material, for the reason that it has been rendered somewhat impervious thereto by its treatment, as described, the residuum of the mixture forming a coating upon the outside of the parts of fiber composing the ball or block. When, therefore, a ball or block of such material treated with the oil is lighted, (the oil facilitating its ready ignition,) the oil on the outside will burn fiercely, and as the fiber is slowly consumed the oil held between its layers will be gradually consumed also, the practical effect, as ascertained by numerous tests and continuous use, being that about two ounces of such fiber thus treated will be sufficient to ignite the anthracite coal necessary for use in any ordinary domestic stove, range, furnace, or other heater. I find that waste paper thus treated is very effective when made into a ball by hand, and that a ball thus made of about three inches in diameter is a thoroughly-effective kindler for any ordinary stove.

Balls, blocks, or cakes prepared in accordance with my invention will be found very useful also as a light fuel, especially for summer use in the household, where a continued

heat is undesirable, such fuel burning for a sufficient length of time to prepare an ordinary meal.

The advantages of my fuel are obvious.

5 Such material as is used as its base is to a very great extent waste, and can be had, some in one locality and others in another, for a trifle, in many instances for nothing, and as a consequence these balls, blocks, or cakes
10 may be made extremely cheap.

In many localities where wood fit for kindling is very scarce, such materials are very plentiful, especially in the country west of the Mississippi River, more especially in the
15 great wheat-growing localities, where the straw is almost entirely wasted. In the East great quantities of waste paper, spent tan-bark, and shavings can be had at a low cost to be utilized by my invention.

20 Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is as follows:

1. A fuel for kindling consisting of fibrous material—such as waste paper, straw, shav- 25 ings, sawdust, spent tan-bark, &c.—treated with a mixture of water and clay, in about the proportions and in the manner set forth.

2. A fuel for kindling consisting of light fibrous materials, such as specified, treated 30 with a mixture of water and clay, supplemented with saltpeter, in about the proportions and in the manner set forth.

3. A fuel for kindling consisting of light fibrous material, such as specified, treated 35 with the mixture of water and clay, supplemented with saltpeter, in about the proportions described, then pressed lightly into balls, blocks, or cakes, and finally treated with petroleum, in the manner set forth. 40

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

ALEXANDER K. MURRAY.

Witnesses:

SHIPLEY BRASHEARS,
M. J. FOOTE.